

*****STN Columbus *****

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=> file medline

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FILE MEDLINE/ ENTERED AT 08:38:17 ON 07 SEP 2000

FILE LAST UPDATED: 1 SEP 2000 (20000901/UP) FILE COVERS 1960 TO DATE.

MEDLINE has been reloaded to reflect the annual Mesh changes made by the National Library of Medicine for 2000. Enter HELP RLOAD for details.

The OLD MEDLINE file segment now contains data from 1958 through 1965. Enter HELP CONTENT for details.

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THIS FILE CONTAINS CAS REGISTRY NUMBERS FOR EASY AND ACCURATE SUBSTANCE IDENTIFICATION.

=> intervertebral disc/ab,bi

INTERVERTEBRAL IS NOT A RECOGNIZED COMMAND. The previous command name entered was not recognized by the system. For a list of commands available to you in the current file, enter *HELP COMMANDS* at an arrow prompt (=>).

=> s intervertebral disc/ab,bi

14933 INTERVERTEBRAL/BI
26941 DISC/BI
5401617 AB/FA
1365 INTERVERTEBRAL DISC/AB
((INTERVERTEBRAL(V)DISC)BI (L) AB/FA)
14933 INTERVERTEBRAL/BI
26941 DISC/BI
1928 INTERVERTEBRAL DISC/BI
((INTERVERTEBRAL(V)DISC)BI (L) AB/FA)
1928 INTERVERTEBRAL DISC/AB,BI
L1 1928 INTERVERTEBRAL DISC/AB,BI

=> s II and (implant?) or transplant?)/ab,bi

12989 IMPLANT/BI
5401617 AB/FA

84121 IMPLANT/AB
(IMPLANT/BI (L) AB/FA)

12989 IMPLANT/BI

281209 TRANSPLANT/BI
5401617 AB/FA

93564 TRANSPLANT/AB
(TRANSPLANT/BI (L) AB/FA)

L2 281209 TRANSPLANT/BI
81 L1 AND (IMPLANT? OR TRANSPLANT?)/AB,BI

=> s L2 and human/ab,bi

7004169 HUMAN/BI

5401617 AB/FA

586781 HUMAN/AB
(HUMAN/BI (L) AB/FA)

L3 7004169 HUMAN/BI

61 L2 AND HUMAN/AB,BI

=> s L3 and (expanded or expansion)/ab,bi

18940 EXPANDED/BI
5401617 AB/FA

17143 EXPANDED/AB
(EXPANDED/BI (L) AB/FA)

18940 EXPANDED/BI

28609 EXPANSION/BI

5401617 AB/FA

24916 EXPANSION/AB

(EXPANSION/BI (L) AB/FA)

L4 28609 EXPANSION/BI

0 L3 AND (EXPANDED OR EXPANSION)/AB,BI

=> s L3 and treat/ab,bi

151313 TREAT/BI

5401617 AB/FA

1134797 TREAT/AB
(TREAT/BI (L) AB/FA)

L5 151313 TREAT/BI

28 L3 AND TREAT/AB,BI

=> d 1- btb ab

YOU HAVE REQUESTED DATA FROM 28 ANSWERS - CONTINUE? Y(N)/Y

L5 ANSWER 1 OF 28 MEDLINE
AN 2000051814 MEDLINE
DN 20051814
TI Acute postoperative aggravation of radiculopathy as a complication of free fat ***transplantation*** in lumbar disc surgery: case report. AU Chuang T Y, Chen W J, Chen L H, Niu C C, Shih C H

CS Department of Orthopedic Surgery, Chang Gung Memorial Hospital, Taipei, Taiwan, R.O.C.

SO CHANG-KENG I HSUEH TSA CHIH, (1999 Sep) 22 (3) 498-502.

Journal code: CHG.

CY CHINA (REPUBLIC: 1949-)

DT Journal, Article; (JOURNAL ARTICLE)

LA English

EM 200002

EW 20000204

AB This case report illustrates a rare case of motor weakness caused by a free fat graft herniation. A 40-year-old woman who had undergone surgery for a herniated lumbar ***intervertebral*** disc*** experienced

right lower leg weakness. On magnetic resonance image (MRI) a herniated free fat graft was noted. An emergent operation was performed and the

herniated fat graft was removed. Postoperatively, the patient recovered well with improvement of the motor weakness. MRI is a good method for

diagnosis of fat graft herniation. The mechanisms of this complication have been documented, and the size of the fat graft plays an important

role. The methods for prevention of this herniation are also discussed. Although the ***transplantation*** of adipose tissue has many advantages, including the prevention of postoperative epidural

fibrosis, great care is needed when applying a fat graft intra-operatively. When a postoperative neurologic deficit develops, herniation of the fat graft must be considered. An emergent operation is the

treatment of choice for this particular complication.

L5 ANSWER 2 OF 28 MEDLINE
AN 2000010727 MEDLINE
DN 20010727

TI Revision strategies for salvaging or improving failed cylindrical cages.

AU McAtee P C, Cunningham B W, Lee G A, Ortoyoso C M, Haggerty C J, Fedder I

L, Griffin S L

CS Scoliosis and Spine Center, Union Memorial Hospital Baltimore, Maryland, USA.

SO SPINE, (1999 Oct 15) 24 (20) 2147-53.

Journal code: UKX. ISSN: 0361-2436.

CY United States

DT Journal, Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals
EM 200001
EW 20000104

AB STUDY DESIGN: This is a review of 20 patients who experienced failure of threaded interbody fusion cages and underwent surgical correction.

OBJECTIVE: To review the causes and possible

treatment
strategies for failed cylindrical cages. SUMMARY OF BACKGROUND DATA:

Intraoperative complications have been described in the past, however,

management of the postoperative patient with failure of interbody fusion devices has not been described. METHODS: In 20 patients with failed threaded titanium fusion cages (18 Bagby and Kuslich Devices [BAK, Sulzer-Spine Tech, Minneapolis, MN], 2 Ray Threaded Fusion Cages [Ray TEC, Surgical Dynamics, Norwalk, CT] who underwent revision surgery, all had

failure before successful arthrodesis was achieved. Eight of the original titanium cages had been inserted anteriorly (7 laparoscopically), and 12 had been inserted for posterior interbody lumbar fusion. Before the revision surgery, five of the ***implants*** were thought to be solid by the referring surgeon, but pseudarthrosis was clearly present in all.

In addition, 14 other explanted BAK devices were subjected to undecalcified histologic preparation, quantitative histomorphometry, and histopathologic analysis. RESULTS: The average length of time before revision surgery (***implant*** duration) was 31.8 weeks (range, 1-156 weeks). The most common revision procedure was posterior exploration of the symptomatic nerve root with foraminotomy for unrecognized lateral recess stenosis (11 cases) or excision of iatrogenically herniated ***intervertebral*** ***disc*** fragments (4 cases).

However, four cages inserted through posterior exposure during an interbody lumbar fusion procedure had to be removed because of migration into the canal. In nine cases posterior pedicle screw instrumentation was necessary. In addition to posterolateral fusion using iliac crest bone grafting

CONCLUSIONS: All 20 cages failed because of surgical technique rather than an intrinsic defect in fusion cage technology. The factors associated with failure of the original insertion procedure were failure to achieve

adequate distraction of the annulus fibrosis, undersized cages, especially when placed through the posterior interbody lumbar fusion approach;

cerebrospinal fluid leakage or pseudomeningocele; Type 2 diabetes mellitus; the use of local bone graft rather than iliac crest inside the cage; anterior insertion in an excessively lateral position resulting in symptoms of a far lateral disc herniation; and failure to identify the spinal midline during an anterior approach.

L5 ANSWER 3 OF 28 MEDLINE
AN 1999436769 MEDLINE
DN 99436769
TI [The x-ray follow-up study of the cervical spine after anterior fusion with titanium disk ***implants***].

Röntgen-Verlaufsuntersuchung der Halswirbelsäule nach anteriorer Fusion mit Titaninterponaten.
AU Biedert J; Hatzelmann A; Rama B; Heller M
CS Klinik für Diagnostische Radiologie, Klinikum der Universität München.
SO ROFO. FORTSCHRITTE AUF DEM GEBIETE DER RÖNTGENSTRALHLEN UND DER NEUEN BILDGEBENDEN VERFAHREN. (1999 Aug) 171 (2) 95-9.
Journal code: A/R. ISSN: 0936-6652.

CY GERMANY: Germany. Federal Republic of DT Journal. Article. (JOURNAL ARTICLE)
LA German
FS Priority Journals; Cancer Journals
EM 199912
EW 19991203
AB PURPOSE: We examined the postoperative changes of the cervical spine after ***treatment*** of cervical nerve root compression with anterior cervical discectomy and fusion with a new titanium ***intervertebral*** ***disc***.

disc. PATIENTS AND METHODS: 37 patients were examined prior to, as well as 4 days, 6 weeks, and 7 months after surgery. Lateral view X-rays and functional imaging were used to evaluate posture and mobility of the cervical spine, the position of the ***implants***, and the reactions of adjacent bone structures. RESULTS: ***Implantation*** of titanium disk led to post-operative distraction of the intervertebral space and slight lordosis. Within the first 6 months a slight loss of distraction and re-kypnosis due to impaction of the ***implants*** into the vertebral end-plates were found in all patients. We noted partial

infractions into the vertebral end-plates in 10/42 segments and

slight mobility of the ***implants*** in 14/42 segments. Both groups of patients showed reactive spondylosis and local symptoms due to loosening of the ***implants***. The pain subsided after onset of bone bridging and stable fixation of the loosened discs. CONCLUSIONS: The titanium ***intervertebral*** ***disc*** provides initial distraction of the fusion segments with partial recurrence of kyphosis during the subsequent course. Loosening of the ***implants*** with local symptoms can be evaluated with follow-up X-rays and functional imaging.

L5 ANSWER 4 OF 28 MEDLINE
AN 1999245617 MEDLINE
DN 99245617
TI Cervical monosegmental interbody fusion using titanium ***implants*** in degenerative, ***intervertebral*** ***disc*** disease.
AU al-Hami S
CS Neurosurgical Clinic Fulda, Germany.. Al-Hami@-online.de
SO MINIMALLY INVASIVE NEUROSURGERY. (1999 Mar) 42 (1) 10-7.
Journal code: B34. ISSN: 0946-7211.

CY GERMANY: Germany. Federal Republic of DT (CLINICAL TRIAL)
Journal. Article. (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199909
EW 19990903
AB Over a period of 12 months at the Klinik für Neurochirurgie (belonging to the Städtischen Klinikums Fulda) 54 patients were operated upon after presenting with cervical radiculopathy or myelopathy in single vertebral segments with intravertebral disc involvement and/or osteoarthrosis. The surgical intervention of all patients was carried out microsurgically by the author using a ventral approach in accordance with the operative procedure and technique as described by Smith and Robinson [59]. In no patient was an additional bone plating necessary. Intraoperative data together with postoperative clinical, neurological, and radiological progress controls at 6 weeks and 3 months were, in the frame of a clinical perspective, non-random study, analysed and evaluated. There were no complications during the operative procedure or postoperatively, and of note, in no case was there any ***implant*** dislocation or

neurological deterioration. Radicular pain was relieved in 98% of patients. Non-radicular pain--neck and shoulder pain--was eradicated in 42 patients (78%), improvement achieved in 8 patients (15%) and 4 patients (7%) still complained of neck pain 3 months postoperatively. Motor radicular deficit was completely relieved in 34 of 38 patients (89%) and in 3 patients (8%) there was a considerable improvement. Similar figures were obtained with relation to radicular sensory deficit. Of 5 patients who presented preoperatively with cervical myelopathy, 3 improved considerably and 2 remained unchanged. For all 50 patients fine layer, computer tomographic examination of the cervical region with 3-dimensional reconstruction was performed immediately postoperatively and at 3 months. All patients showed a correct positioning of the ***implant*** and either a complete or convincing bony ingrowth between the operated vertebrae. To summarise, the presented clinical and radiological study shows the cancellous bone tissue filled, titanium ***implant*** to be a meaningful and useable alternative to conventional methods of spinal fusion. Essential advantages: (i) Negation of "bone procedure" complications at the iliac crest and neck combined with a simple and safe surgical procedure. (ii) Reduced hospitalisation time and subsequent ***treatment*** costs. (iii) The good biocompatibility of titanium combined with a solid stability at the fusion site. Despite the excellent initial operative results the absence of long term results must be born in mind.

L5 ANSWER 5 OF 28 MEDLINE
AN 199906320 MEDLINE
DN 99086320
TI Percutaneous ***treatment*** of rare iatrogenic arteriovenous fistulas of the lower limbs.
AU Burger T, Meyer F, Tautenhahn J, Halloul Z, Fritke J
CS Clinic for General, Abdominal and Vascular Surgery, Surgical Center.
Medical Faculty, Otto von Guericke University, Magdeburg, Germany.
SO INTERNATIONAL SURGERY, (1998 Jul-Sep) 83 (3) 198-201.

Journal code: GUP, ISSN: 0020-8686.
CY Italy
DT Journal, Article, (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199904
EW 19990404
AB Postoperative iliac and popliteal arteriovenous fistulas are extremely rare. This article describes the percutaneous endovascular ***treatment*** of iatrogenically induced arteriovenous fistula in two patients with simultaneous use of intravascular ultrasound. In a 61-year-old woman, a fistula between popliteal artery and vein, inadvertently created during ***implantation*** of a prosthetic knee joint, was ***treated*** with a novel polytetrafluoroethylene (PTFE) stent graft. A 48-year-old man underwent endovascular ***treatment*** of a large fistula between the right common iliac artery and the left common iliac vein, inadvertently induced during surgery on an ***intervertebral*** disc. Congestive heart failure induced by the arteriovenous communication was reduced rapidly. Our results indicate that percutaneous ***treatment*** in conjunction with intravascular ultrasound is a useful therapeutic option for vascular lesions. It is less invasive than open vascular reconstruction and has a comparably high success rate.

L5 ANSWER 6 OF 28 MEDLINE
AN 1998291888 MEDLINE
DN 98291888
TI Simultaneous combined anterior and posterior lumbar fusion with femoral cortical allograft.
AU Liljenqvist U, O'Brien J P, Rendon P
CS Spinal Surgery Unit, London Clinic, UK.
SO EUROPEAN SPINE JOURNAL, (1998) 7 (2) 125-31.
Journal code: B9T, ISSN: 0940-6719.
CY GERMANY; Germany, Federal Republic of
DT Journal, Article, (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199810
EW 19981003
AB The radiographic fusion rates, graft behaviour and clinical outcome of 41 patient with simultaneous combined anterior lumbar interbody fusion and posterior arthrodesis with translamina screws were reviewed independently. In all patients a femoral cortical allograft (FCA) ring filled with autologous iliac crest cancellous bone was used

anteriorly to replace the disc and achieve interbody fusion. The follow-up averaged 30.6 months, with a minimum follow-up of 24 months. All patients had disabling low-back pain with different degrees of radiating leg pain and either discogenic pain (n = 24) or a postdiscectomy syndrome (n = 15) respectively postfusion syndrome (n = 2). The overall fusion rate was 95.2% (59 of 62 segments). Time to radiographic fusion averaged 8.7 months (range 2-34 months), and in 66.1% radiographic fusion occurred without significant subsidence. In 18.6% fusion with subsidence resulted from resorption of the FCA and in 15.3% the FCA had protruded into the vertebral body. The posterior ***intervertebral*** disc height (PIVDH) increased postoperatively by 2 mm on average. However, loss of PIVDH was the rule, and occurred within the first 12 months, resulting in a negligible final gain in height of 0.3 mm on average. The segmental lordosis was increased by 3 degrees; however, loss of lordosis during the first 6 postoperative months led to a final gain in lordosis of 1.3 degrees on average. Graft incorporation occurred in 16 of 62 segments (25.8%) and was observed at an average of 21.9 months postoperatively. Subjectively, 82.4% of the patients were satisfied or highly satisfied with the clinical result of the fusion operation. In conclusion, the described technique has proven to be highly effective in achieving a high fusion rate with a good patient outcome.

L5 ANSWER 7 OF 28 MEDLINE
AN 1998083860 MEDLINE
DN 98083860
TI [Monosegmental internal fixator instrumentation and fusion in ***treatment*** of fractures of the thoracolumbar spine. Indications, technique and results].
Die monosegmentale Fixateur interne-Instrumentation und Fusion in der Behandlung von Frakturen der thorakolumbalen Wirbelsaule.
Indikation, Technik und Ergebnisse.
AU Jurgens A, Geitzen L, von Garsel T, Ziring E, Giannakakis N
CS Klinik für Unfallchirurgie, Phillips-Universität Marburg
SO UNFALLCHIRURG, (1997 Nov) 100 (11) 880-7.
Journal code: UNP, ISSN: 0177-5537.
CY GERMANY; Germany, Federal Republic of
DT Journal, Article, (JOURNAL ARTICLE)
LA German

EM 199804
 EW 19980404
 AB Dorsal fusion with the internal fixator has become the standard
 treatment of instabilities and deformities of the
 thoracolumbar spine. With our new device, the modular spine fixator (MSF),
 which has been specially designed for short-distance instrumentations, we
 have increasingly been ***treating*** unstable injuries of the
 thoracolumbar spine by one-level stabilization. Prerequisite is an
 accurate evaluation of the indication, including CT and MRI to
 assess the involvement of the ***intervertebral*** ***disc*** and the
 ligamentous structures. The operative technique differs in some
 details from the procedure in more-multi-level instrumentations, especially
 concerning the application of the pedicle screws. The
 instrumentation is always combined with posterior allogenic bone grafting. Since the
 beginning of 1993 we also perform anterior autogenic
 transpedicular bone grafting. Between January 1991 and July 1995, 57 one-level
 stabilizations with the MSF were performed. Of the 57 patients operated on 39,
 27 men and 12 women, with an average age of 41 years, have had a clinical and
 radiographic follow-up examination so far, on average, 27 months
 after the accident. Seventeen patients were completely free of pain and 17
 patients (were only) sensitive to weather changes or had minor pain during
 great physical stress. Five patients had pain even during slight physical
 stress or at rest. The preoperatively measured Cobb angle was 15.1
 degrees on average, after the operation 5.2 degrees, and at the time of the
 follow-up examination amounted to 8.1 degrees. The patients' range of motion
 was normal. Only five minor complications have been seen. No
 implant fatigue failure has been noted in this series. We derive from these
 results that, for correct indications, one-level stabilization can be
 performed successfully and should be firmly established in the
 operative ***treatment*** of unstable fractures of the thoracolumbar
 spine.

L5 ANSWER 8 OF 28 MEDLINE
 AN 97283044 MEDLINE
 DN 97283044
 TI ***Intervertebral*** ***disc*** prosthesis: Results and
 prospects for the year 2000.
 AU Lemaire J P, Skalli W, Lavaste F, Templier A, Mendes F, Diop

A. Sauty V.
 Laloux E
 CS Centre d'Etude et de Chirurgie du Rachis, Point Medical, Dijon,
 France.
 SO CLINICAL ORTHOPAEDICS AND RELATED RESEARCH,
 (1997 Apr) (337) 64-76. Ref:
 66
 Journal code: DFX. ISSN: 0009-921X.
 CY United States
 DT Journal, Article; (JOURNAL ARTICLE)
 General Review; (REVIEW)
 (REVIEW, TUTORIAL)
 LA English
 FS Abridged Index Medicus Journals; Priority Journals
 EM 199708
 AB Presently, the kinematic disc prosthesis model (SB Charite) is
 the best disc replacement compromise, and is the basis of the evolution of
 the prosthetic concept at the dawn of the year 2000. Clinical results
 of a homogeneous series of 105 cases with a mean followup of 51
 months show 79% of the patients had an excellent result and 87% returned to work.
 radiologically, these results correlated with restoration of a well
 balanced lordosis and with segmental mobility. Factors leading to
 failure are posterior facet arthritis, osteoporosis, structural deformities, and
 secondary facet pain. Two- and 3-dimensional numeric modeling
 enables one to study the total facet joint loading and the maximal local loading
 on the facet. Dissociation of the stiffness in pure rotation and stiffness
 in translation of the disc are the bases of the technologic
 improvement.

L5 ANSWER 9 OF 28 MEDLINE
 AN 96432081 MEDLINE
 DN 96432081
 TI Diagnostic and therapeutic spinal arthroscopy.
 AU Kambin P
 CS Department of Orthopaedic Surgery, University of Pennsylvania
 Medical School, Philadelphia, USA.
 SO NEUROSURGERY CLINICS OF NORTH AMERICA, (1996
 Jan) 7 (1) 65-76. Ref: 49
 Journal code: BIT. ISSN: 1042-3680.
 CY United States
 DT Journal, Article; (JOURNAL ARTICLE)
 General Review; (REVIEW)
 (REVIEW, TUTORIAL)
 LA English
 FS Priority Journals
 EM 199702
 AB Minimally invasive spinal surgery is an attractive alternative
 method for

the diagnosis and ***treatment*** of a variety of spinal
 disorders.
 Minimal insult to the soft tissue structures results in rapid recovery
 and an early return to a functional level. Arthroscopic debridement of
 intervertebral ***disc*** infections, arthroscopic
 interbody fusion, diagnostic temporary fixation of lumbar motion segments,
 and intradiscal and pedicular access to the vertebral body for biopsy
 purposes are making incursions in the field of minimally invasive spinal
 surgery.

L5 ANSWER 10 OF 28 MEDLINE
 AN 96342581 MEDLINE
 DN 96342581
 TI Microsurgical anterior decompression and internal fixation with
 iliac bone graft and titanium plates for ***treatment*** of cervical
 intervertebral ***disc*** herniation.
 AU Muhlbaier M, Suringer W, Aueholler M, Sunder-Plassmann M
 CS Department of Neurosurgery, University of Vienna Medical
 School, Austria.
 SO ACTA NEUROCHIRURGICA, (1995) 134 (3-4) 207-13.
 Journal code: 19C. ISSN: 0001-6268.
 CY Austria
 DT Journal, Article; (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 199612
 AB 42 cervical interbody fusions with iliac bone graft and titanium
 plate fixation were performed between October 1991 and March 1994.
 The mean follow up period in this study was 10.7 months. In 32 cases fusion
 was done for 1 and in 10 cases for 2 segments. 2 different types of plates
 were used. In 25 cases micro-osteosynthesis plates and screws with
 2.7 mm diameter were used, and in 17 cases cervical H-plates and screws
 with 3.5 mm diameter. A favourable outcome was achieved in 31 of 42
 cases (74%).
 Satisfactory pain relief was achieved in 90%. For radicular motor
 deficit good results were obtained in 84% and for cervical myelopathy in
 54%. The 2 different types of plates showed a remarkable difference in the
 clinical outcome. The results were regarded favourable in 15 of 25
 microplate fusions (60%) and in 16 of 17 H-plate fusions (94%). Compression
 of the bone graft was seen in 5 patients of the micro plate group, however,
 radiological signs for fusion were present in all 42 cases at follow
 up.

Major surgical complications, damage to neural structures or neurological deterioration did not occur in this study. Plate fixation in cervical interbody fusions seems to be a safe procedure and may reduce graft related complications at the fusion site if the plates and screws are sufficiently well proportioned. A favourable impact upon the results for cervical interbody fusion might be expected and should be further investigated in a long term follow up study.

L5 ANSWER 11 OF 28 MEDLINE
AN 96272130 MEDLINE
DN 96272130

TI Median corpectomy in cervical spondylotic multisegmental stenosis.

AU Burger R, Torn J C, Vinke G H, Hofmann E, Reiners K, Roosen K

CS Neurochirurgische Klinik, Universitat Wuerzburg
SO ZENTRALBLATT FUR NEUROCHIRURGIE. (1996) 57 (2)

Journal code: YGC. ISSN: 0044-4251.

CY GERMANY: Germany, Federal Republic of

DT Journal, Article, (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199611

AB Cervical median corpectomy as an alternative to laminoplasty and laminectomy has been suggested as an effective ***treatment***

for cervical spondylotic myelopathy (CSM) in cases of multisegmental spondylotic stenosis. We report on our experience with this procedure with particular reference to neurological outcome and complications.

Median

corpectomy was performed in 17 cases (3 female, 14 male, mean age 59 yrs,

(41-80 yrs.) with cervical myelopathy (CM) and radiologically diagnosed multisegmental spondylotic stenosis and spinal cord compression

seen on MRI. The degree of stenosis was determined by means of the modified

Pavlov's index (ratio between spinal canal width at the level of the ***intervertebral*** and the diameter of the

vertebral body itself) 3/17 patients suffered from acute, 4/17 from subacute

and 10/17 from chronic CM. Single level corpectomy was performed in 9 cases,

one and a half vertebrae were removed in 2 cases and dual level corpectomy

was performed in the remaining 6 cases. All patients received an autologous bone graft and AO - anterior plate stabilization or were

stabilized as described by Morscher. Postoperative follow - up was possible in 16/17 cases over a mean time of 13.5 months.

Myelopathy was

graded according to Nurick's scale. Postoperatively, 12% with chronic CM improved by two grades, 38% (2 pts. with acute, 3 with subacute and 1 with chronic CM) improved by one grade. The other patients remained stable, none showed worsening of their myelopathy. Paresis improved in 92%, sensory deficits in 69%, spasticity in 73%, pain in 60%, and vegetative disturbances in 100% of all patients presenting these preoperative symptoms respectively. One patient died due to esophageal perforation and subsequent lethal mediastinitis caused by screw loosening 4 months following surgery and after initial neurological improvement. 4 other

patients experienced screw loosening, three with acetabulosis, one remained clinically asymptomatic with concomitant graft displacement in two of these. One patient had to be re-operated due to a hematoma at the

iliac crest and 2 suffered from a pelvic fracture of the spine. Iliaca at the site of graft removal. With respect to the neurological improvement,

especially to the motor function and spasticity, median corpectomy can be regarded as an effective procedure in selected cases with cervical myelopathy, even when ***treatment*** related complications

are taken into consideration.

L5 ANSWER 12 OF 28 MEDLINE
AN 96230624 MEDLINE
DN 96230624

TI [Laparoscopic 2-level fusion of the lumbar spine with Bagby and Kuslich

implants].

Laparoskopische 2-Ebenenfusion der lumbalen Wirbelsaule mit Bagby- und Kuslich (BAK). ***Implantaten***

AU Olinger A, Hildebrandt U, Pistorius G, Lindemann W, Menger M D

CS Abteilung für Unfall-, Hand- und Wiederherstellungschirurgie, Chirurgische

Universitätsklinik des Saarlandes, Homburg/Saar.

SO CHIRURG. (1996 Apr) 67 (4) 348-50.

Journal code: DSU. ISSN: 0009-4722.

CY GERMANY: Germany, Federal Republic of

DT Journal, Article, (JOURNAL ARTICLE)

LA German

FS Priority Journals

EM 199609

AB In a 50-year-old female patient, presenting with permanent low lumbar back

pain and intermittent neurological alterations due to degenerative disc

disease L4/5 and L5/S1 we demonstrate that two-level anterior

interbody fusion can be performed via laparoscopic transabdominal instrumentation

using BAK interbody ***implants***. ***Intervertebral***

disc space L5/S1 was stabilized approaching the spine caudally of

the aortic bifurcation, while disc space L4/L5 required an approach from

the left lateral aspect, mobilizing the aorta and vena cava to the right.

The postoperative course was without complications and allowed discharge from the hospital on day 8. X-ray control 4 months later

demonstrated restoration of adequate disc space at L4/L5 and L5/S1 and appropriate positioning of the ***implants***.

L5 ANSWER 13 OF 28 MEDLINE
AN 96128411 MEDLINE
DN 96128411

TI Thoracoscopic repair of thoracic spine trauma

AU Hertlein H, Hartl W H, Dienemann H, Schumann M, Lob G

CS Department of Surgery, Klinikum Grosshadern, Ludwig-Maximilians University

Medical School, Munich, Germany.

SO EUROPEAN SPINE JOURNAL. (1995) 4 (5) 302-7.

Journal code: B9Y. ISSN: 0940-6719.

CY GERMANY: Germany, Federal Republic of

DT Journal, Article, (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199605

AB Modern concepts of ***treating*** thoracic and lumbar spinal trauma

are based on posterior transpedicular fixation techniques which

confir

angular stability and instrument only a few levels of the spine. In

addition, to prevent secondary losses in postoperative reduction of

kyphotic deformities, transpedicular resection of torn discs, and

inter- and intracorporeal bone grafting are included in the repair

procedures for the entire damaged motion segment. However, due to the small size

of the pedicles, a transpedicular approach to the injured vertebral body is

not possible in the upper thoracic spine. Patients whose thoracic spine

trauma is not serious enough to require ventral instrumentation through

open thoracotomy, but who present with an unstable vertebral fracture,

may profit from additional ventral bone grafting to stabilize the fracture.

The present study examined the feasibility of thoracoscopic ventral

bone grafting in seven patients with unstable fractures of the upper

thoracic spine. For primary repair, we stabilized the fracture by using posterior transpedicular screw systems (rods or plates). Simultaneously, spongiosa was harvested from the posterior iliac crest and deepfrozen. Repair was completed a few days later via a ventral thoracoscopic approach. The main location of the ventral osseous defect was identified by intraoperative radiology. After mechanical removal of destroyed connective tissue and disc material, fusion was performed using the previously harvested spongiosa, which was placed into the ***intervertebral***
 disc space and the anterior osseous defect. Our results show thoracoscopic bone grafting to be technically possible and associated with low morbidity, with a potential of yielding satisfactory long-term results.

L5 ANSWER 14 OF 28 MEDLINE
 AN 95323517 MEDLINE
 DN 95323517
 TI Mechanical performance of the Dick internal fixator: a clinical study of 75 patients.
 AU Rommens P M, Weyns F, Van Calenbergh F, Goffin J, Broos P L
 CS Department of Traumatology and Emergency Surgery, Hospital of the Catholic University of Leuven, Belgium.
 SO EUROPEAN SPINE JOURNAL, (1995) 4 (2) 104-9.
 Journal code: B9Y. ISSN: 0940-6719.
 CY GERMANY: Germany, Federal Republic of
 DT Journal; Article; (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 199510
 AB A consecutive series of 75 patients with fractures of the thoracolumbar spine, stabilized with the Dick internal fixator, was studied retrospectively. Posttraumatic kyphosis was measured on the preoperative lateral radiograph by the Cobb angle and the wedge angle and the results were compared with angles measured on the radiographs after instrumentation and after removal of the ***implants***. The presence and number of broken Schanz screws was noted. In the whole group, an average correction of kyphosis of 15.5 degrees was obtained, but 7.6 degrees was lost again at follow-up. In comparing the kyphotic angle with the wedge angle, we found that this loss was almost exclusively

situated in the upper ***intervertebral*** ***disc*** space. In the group of patients with transpedicular intravertebral bone grafting, the relative loss of correction in the wedge angle was smaller than in the group without bone grafting, while the relative loss of correction of the kyphotic angle was similar. Schanz screw breakage was present in 13.3% of patients, occurring in 4.6% of inserted screws. In the group of patients with broken Schanz screws, the loss of correction in the wedge angle was somewhat higher, but not markedly different from that of the patient group without breakage of screws. Risk of screw breakage was enhanced by laminectomy and reduced by transpedicular bone grafting. Screw breakage or important loss of correction did not influence the neurological outcome of the patients. The Dick internal fixator is a very reliable ***implant***, even in patients with highly unstable fractures.(ABSTRACT TRUNCATED AT 250 WORDS)

L5 ANSWER 15 OF 28 MEDLINE
 AN 95179585 MEDLINE
 DN 95179585
 TI Anterior lumbar fusion using a hybrid interbody graft. A preliminary radiographic report.
 AU Holte D C, O'Brien J P, Ranton P
 CS London Clinic, UK.
 SO EUROPEAN SPINE JOURNAL, (1994) 3 (1) 32-8. Ref: 32
 Journal code: B9Y. ISSN: 0940-6719.
 CY GERMANY: Germany, Federal Republic of
 DT Journal; Article; (JOURNAL ARTICLE)
 General Review; (REVIEW)
 LA English
 FS Priority Journals
 EM 199506
 AB This is a radiographic report of 40 patients (20 men, 20 women) who underwent anterior lumbar interbody fusions (73 levels) utilizing a "hybrid" interbody graft composed of femoral cortical allograft (FCA) bone and iliac crest cancellous autograft bone. The average age at surgery was 38 years (range 17-64 years), and follow-up averaged 1.4 years (range 1.0-2.4 years). Nineteen of the patients had undergone previous lumbar surgery. Thirty-two patients (63 levels) underwent anterior fusion combined with some type of posterior fixation, and eight patients

(10 levels) had no posterior fixation. Types of posterior fixation included: for 20 patients (36 levels) Steffee variable screw placement fixation, for 10 patients (23 levels) translaminar facet screws (TFS), for 1 patient (3 levels) Knott rods and for 1 patient (1 level) facet screws. Based on the persistence of lucent lines at the graft-host interface, three patients (one level each) were felt to have non-unions at their latest follow-ups at 1.4, 1.5 and 2.0 years, respectively. Two of these patients had no posterior fixation, and the other had TFS fixation. The overall fusion rate was 96% (70 of 73 levels). The fusion rate for all levels ***treated*** with posterior fixation was 98% compared with 75% for those without fixation. ***Intervertebral*** ***disc*** heights (IVDH) were measured on all films and corrected for magnification with computer assistance. On average, the IVDH was increased postoperatively but returned to preoperative values at follow-up. IVDH loss was independent of the type of instrumentation used. No complications arose from the use of the hybrid graft.(ABSTRACT TRUNCATED AT 250 WORDS)

L5 ANSWER 16 OF 28 MEDLINE
 AN 95055469 MEDLINE
 DN 95055469
 TI Aspergillus spondylodiscitis: successful conservative ***treatment*** in 9 cases.
 AU Cortet B, Richard R, Deprez X, Lucet L, Flipo R M, Le Loez X, Duquesnoy B, Delcambre B
 CS Department of Rheumatology, Centre Andre Verhaeghe, Centre Hospitalier Regional et Universitaire de Lille, France.
 SO JOURNAL OF RHEUMATOLOGY, (1994 Jul) 21 (7) 1287-91.
 Journal code: JMX. ISSN: 0315-162X.
 CY Canada
 DT Journal; Article; (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 199502
 AB OBJECTIVE: To assess the effectiveness of medical ***treatment*** by clinical, radiological, and biological analysis of outcome in 9 patients with aspergillus spondylodiscitis. METHODS: Retrospective study including 9 patients with aspergillus discitis, in which 7 were immunosuppressed; 3

were heart ***transplant*** patients, 2 had acute lymphoblastic leukemia, 1 hairy cell leukemia and one was receiving prednisone for bronchial asthma. Four patients had isolated spinal aspergillus infection. In 4 cases, disc space infection occurred after pulmonary aspergilliosis. In the last case the spondylodiscitis occurred after aspergillus endocarditis and mycotic limb embolism. In all cases a percutaneous needle biopsy of the ***intervertebral*** disc was performed; the subsequent culture produced *Aspergillus fumigatus* in 8 cases and *Aspergillus flavus* in 1. Itraconazole was given to all patients (mean dose: 350 mg/day); it was given alone in 2 cases, in addition to 5 fluocytosine and amphotericin B in 6 cases, and in addition to amphotericin B in the last case. RESULTS. Improvement was obtained in the 9 cases, with full recovery in the absence of any surgical debridement after a mean ***treatment*** duration of 5.5 months and a mean followup delay of 16 months. CONCLUSION. Early recognition of aspergillus spondylodiscitis in immunocompromised hosts is important. Itraconazole alone or in combination is an effective therapy. There may be an increased incidence of aspergillus discitis due to the increasing frequency of immunosuppression associated conditions including organ ***transplantation***, chemotherapy, or acquired immune deficiency syndrome.

L5 ANSWER 17 OF 28 MEDLINE
AN 94096098 MEDLINE
DN 94096098
TI The surgical technique of anterior cervical fusion using bone grafts obtained from cervical vertebral bodies [see comments].
CM Comment in: J Neurosurg 1994 Nov;81(5):807-8
AU Ito T, Kanada K, Kobayashi N, Mabuchi S
CS Department of Neurosurgery, Kusshino Rousai Hospital, Japan.
SO JOURNAL OF NEUROSURGERY. (1994 Jan) 80 (1) 16-9.
Journal code: JD3. ISSN: 0022-3085.
CY United States
DT Journal, Article; (JOURNAL ARTICLE)
LA English
FS Abridged Index Medicus Journals; Priority Journals; Cancer Journals
EM 199404
AB The authors describe the surgical technique of anterior cervical fusion using bone grafts obtained from cervical vertebral bodies. This series consisted of 90 patients with cervical ***intervertebral*** disc disease suffering from cervical spondylotic myelopathy. Thirty-five patients were operated on at one level, 33 at two levels,

and 22 at three levels. Postoperative x-ray films showed solid bone fusion in all patients at a mean follow-up time of 24 months (range 1 year to 3 years 6 months). Anterior angulation was found in four (4.4%) of the 90 patients. This surgical procedure has two major advantages: 1) there are no complications related to the iliac donor site, allowing early patient mobilization; and 2) the extensive posterior spur can be removed safely and easily under a wide operative field without damaging the spinal cord and nerve roots.

L5 ANSWER 18 OF 28 MEDLINE
AN 91347733 MEDLINE
DN 91347733
TI Lumbar ***intervertebral*** disc prosthesis. An experimental study.
AU Hou T S, Tu K Y, Xu Y K, Li Z B, Cai A H, Wang H C
CS Department of Orthopedics, Changzheng Hospital, Shanghai.
SO CHINESE MEDICAL JOURNAL. (1991 May) 104 (5) 381-6.
Journal code: DBJ. ISSN: 0366-6999.
CY China
DT Journal, Article; (JOURNAL ARTICLE)
LA English
EM 199112
AB To provide a more effective ***treatment*** and improve the outcome of surgical ***treatment*** of lumbar ***intervertebral*** disc protrusion, the values of lumbar ***intervertebral*** prosthesis (LIDP) were investigated. LIDP was specially designed and made of silicone rubber. The properties of material were investigated by compressive test and damage test of LIDP specimens. The biocompatibilities of LIDP were observed experimentally in monkeys. The surgical applicabilities were studied by in vitro experiments of fresh ***human*** lumbar spine. The results showed that LIDP has advantages of good biomechanical applicability, biocompatibility and surgical applicability. LIDP is able to maintain the intervertebral space, stress balance and stability of the lumbar spine, after lumbar ***intervertebral*** disc excision, the replacement of LIDP could restore the functions of the lumbar spine and improve the curative

results of disc excision.

L5 ANSWER 19 OF 28 MEDLINE
AN 91332662 MEDLINE
DN 91332662
TI ***Treatment*** of chronic pain by epidural spinal cord stimulation: a 10-year experience.
AU Kumar K, Niah R, Wyant G M
CS Division of Neurosurgery, Plains Health Centre, University of Saskatchewan, Regina, Canada.
SO JOURNAL OF NEUROSURGERY. (1991 Sep) 75 (3) 402-7.
Journal code: JD3. ISSN: 0022-3085.
CY United States
DT Journal, Article; (JOURNAL ARTICLE)
LA English
FS Abridged Index Medicus Journals; Priority Journals; Cancer Journals
EM 199111
AB Epidural spinal cord stimulation by means of chronically implanted electrodes was carried out on 121 patients with pain of varied benign organic etiology. In 116 patients, the pain was confined to the back and lower extremities and, of these, 56 exhibited the failed-back syndrome. Most patients were referred by a pain management service because of failure of conventional pain ***treatment*** modalities. Electrodes were ***implanted*** at varying sites, dictated by the location of pain. A total of 140 epidural ***implants*** were used: 76 unipolar, 46 Resume electrodes, 12 bipolar, and six quadripolar. Patients were followed for periods ranging from 6 months to 10 years, with a mean follow-up period of 40 months. Forty-eight patients (40%) were able to control their pain by neurostimulation alone. A further 14 patients (12%), in addition to following a regular stimulation program, needed analgesic supplements to achieve 50% or more relief of the prestimulation pain. Pain secondary to arachnoiditis or perineural fibrosis following multiple ***intervertebral*** disc operations, when predominantly confined to one lower extremity, seemed to respond favorably to this ***treatment***. Uniformly good results were also obtained in lower-extremity pain secondary to multiple sclerosis. Pain due to advanced peripheral vascular disease of the lower limbs was well controlled,

and amputation below the knee was delayed for up to 2 years in some patients.

Pain due to cauda equina injury, paraplegic pain, phantom-limb pain, pure midline back pain without radiculopathy, or pain due to primary bone or joint disease seemed to respond less well. Patients who responded to preliminary transcutaneous electrical nerve stimulation generally did well

with electrode ***implants***. Notable complications included wound infection, electrode displacement or fracturing, and fibrosis at the stimulating tip of the electrode. Three patients in this series died due to unrelated causes. Epidural spinal cord stimulation has proven to be an

effective and safe means of controlling pain on a long-term basis in selected groups of patients. The mechanism of action of stimulation-produced analgesia remains unclear; further studies to elucidate it might allow spinal cord stimulation to be exploited more effectively in disorders that are currently refractory to this ***treatment*** modality.

L5 ANSWER 20 OF 28 MEDLINE
AN 91320236 MEDLINE
DN 91320236

TI Development of a prosthetic ***intervertebral***
disc

AU Lee C K, Langrana N A, Parsons J R, Zimmerman M C
CS Department of Orthopaedic Surgery, University of Medicine and Dentistry of New Jersey Medical School, Newark.

SO SPINE. (1991 Jun) 16 (6 Suppl) S23-5.
Journal code: UXX. ISSN: 0362-2436.

CY United States
DT Journal, Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199111

AB This article is a preliminary report of a 10-year investigation of the development of an ***intervertebral*** ***disc*** prosthesis.

Spinal fusion is a method for the ***treatment*** of chronic, disabling low-back pain that does not respond to nonoperative ***treatments***. Spinal fusion, however, has various adverse effects, and the results of spinal fusion are often unpredictable. The goal of this research project was to develop disc prostheses that have mechanical properties very similar to those of natural, normal discs. Two types of disc prosthesis, one with fiber-reinforced polyurethane and the

other with

multicomponent, non-fiber-reinforced polymers (C-Flex), have been designed and manufactured. The fiber-reinforced disc was made of polyurethane end-plates with A100 hardness, a homogeneous nucleus with A40, and 12 layers of multidirectional (0, +45 degrees), fiber-reinforced annulus with

A40 polyurethane. The design and modeling of the multicomponent polymers (non-fiber-reinforced) was made of C-Flex endplates with A90 hardness, a nucleus with A35 occupying 35% of the volume, and an annulus with 70A. Mechanical testing of these disc prostheses demonstrated similar mechanical properties to those of natural, normal discs.

L5 ANSWER 21 OF 28 MEDLINE
AN 91227993 MEDLINE
DN 91227993

TI Anterior plating in thoracolumbar spine injuries. Indication, technique, and results.

AU Haas N, Blaich M, Tschene H
CS Trauma Department, Hannover Medical School, Germany.
SO SPINE. (1991 Mar) 16 (3 Suppl) S100-11.
Journal code: UXX. ISSN: 0362-2436.

CY United States
DT Journal, Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199108

AB The selection of surgical approach for patients suffering from acute thoracolumbar spinal trauma is presently imbued with great controversy.

The surgical method chosen depends on the type of fracture, anatomic and biomechanical factors, and the habits and experience of the surgeon involved. Due to new techniques for the posterior approach and the use of

internal fixators, the indications for the anterior approach must be reassessed. The primary indication for anterior decompression and grating

is narrowing of the spinal canal with neurologic deficits that cannot be resolved by any other approach. Additional indications are seen in patients with vertebral body fractures with complete comminution and

dislocation, noncorrectable burst fractures, and late misalignments. After removal of vertebral body and ***intervertebral*** ***disc***

fragments, autogenous bone should preferably be used for interposition. Different plates can be used for instrumentation. While anterior

plates

most often offer complete stability for the thoracic spine and a dorsal plating in this region can turn out to be quite difficult, in the lumbar spine, especially with destruction of additional posterior structures, one

must think of subsequent surgical intervention for increased stability and compressive posterior fusion with short-armed internal fixators. So far,

we have gained experience from ***treating*** 39 patients with anterior decompression and stabilization. One of 19 patients with Frankel Grades A and B and 50% of the remaining 20 patients had improved one

Frankel grade. Only a few of the patients with incomplete neurologic symptoms had back pain. All except for one returned to work.

According to radiologic examinations, the average loss of correction amounted to 7%.

L5 ANSWER 22 OF 28 MEDLINE
AN 90069745 MEDLINE
DN 90069745

TI Biomechanical evaluation of cervical spinal stabilization methods in a

human cadaveric model.
AU Coe J D, Warden K E, Sutterlin C E 3d, McAfee P C
CS Department of Orthopaedic Surgery, Union Memorial Hospital, Baltimore.

NC ARK489 (NIAMS)
SO SPINE. (1989 Oct) 14 (10) 1122-31.
Journal code: UXX. ISSN: 0362-2436.

CY United States
DT Journal, Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199003

AB The authors have previously reported in vitro testing of various posterior and anterior constructs (sublaminar, Rogers, and Behlman's triple-wire

wiring, AO hook plate fixation, and Caspar anterior plate fixation) in a bovine model with multiaxial biomechanical testing. This study was

undertaken to evaluate the above constructs and other constructs in ***human*** cadaveric spines. Six subaxial ***human*** cervical spine specimens were biomechanically tested at the C3-C6 motion segment

both intact and with a simulated distractive-flexion Stage 3 injury created at the C5-C6 level with complete disruption of the supraspinous ligament, interspinous ligament, ligamentum flavum, posterior

longitudinal ligament, and facet joint capsules, with sufficient disruption of the ***intervertebral*** ***disc*** to allow a bilateral C5-C6 facet dislocation. The specimens were tested with a six-channel Bionix MTS 858 materials tester (M.T.S., Minneapolis, Minnesota) using cyclic loads to simulate cervical compression, flexion, extension, and rotation with measurements of axial load, axial displacement, torque, rotation, and anterior and posterior strains. Eight constructs were tested nondestructively: the intact spinal segment, sublamina wiring, Rogers' wiring, Bohlman's wiring method (triple-wire technique), Roy-Camille posterior plate fixation, AO posterior hook-plate fixation, Caspar anterior plate fixation, and AO posterior hook-plate with Caspar anterior plate fixation. There was no significant difference in flexural stiffness and torsional stiffness between any of the constructs tested; however, there was a significant (P less than 0.05) increase in the posterior strain during flexion and axial loading tests between the Caspar plate construct and all other tested constructs, including the combined posterior and anterior plating construct. These differences persisted after cyclic testing of 100 cycles. Biomechanical testing demonstrated no significant differences between any of the posterior stabilization methods. Caspar anterior plating is clearly an inferior method of ***treating*** distracting flexion injuries of the cervical spine when compared with all posterior fixation techniques. Also, there is little biomechanical justification for the use of potentially dangerous sublamina wire fixation and posterior plating methods in these injuries (with intact bony posterior elements), since the relatively safe interspinous wiring methods (Rogers' and Bohlman) are just as rigid as these other posterior fixation techniques.

L5 ANSWER 23 OF 28 MEDLINE
AN 85105115 MEDLINE
DN 85105115
TI Anterior decompression of traumatic thoracolumbar fractures with incomplete neurological deficit using a retroperitoneal approach
AU McAfee P C, Bohlman H H, Yuan H A
SO JOURNAL OF BONE AND JOINT SURGERY, AMERICAN VOLUME, (1985 Jan) 67 (1)
89-104
Journal code: HIR, ISSN: 0021-9355.
CY United States
DT Journal, Article: (JOURNAL ARTICLE)
LA English

FS Abridged Index Medicus Journals, Priority Journals
EM 198505
AB Between 1973 and 1981, seventy patients with a spinal cord injury secondary to a thoracolumbar fracture were ***treated*** by anterior spinal-canal decompression through a retroperitoneal approach. All of these patients had an incomplete neurological deficit caused by retroplused vertebral-body fragments and ***intervertebral*** ***disc*** material in the spinal canal. Forty-eight patients have been followed for an average of 3.4 years (range, two to 8.6 years). Either computed tomography or lateral tomography, or both, was performed after surgery on these forty-eight patients, and confirmed the successful removal of the cause of compression in all of them. No patient lost further cord or cauda equina function after the anterior decompression. Thirty-seven of the forty-two patients who had a motor deficit improved by at least one class in motor strength. Fourteen of the thirty patients whose quadriceps and hamstrings were too weak to permit walking regained full independent walking ability. Twelve of the thirty-two patients who had a conus medullaris injury demonstrated neurogenic bowel and bladder recovery. The degree of neurological recovery of spinal cord injury after anterior spinal decompression of thoracolumbar fractures appears more favorable than after other, previously reported techniques that do not decompress the spinal canal.

L5 ANSWER 24 OF 28 MEDLINE
AN 84096662 MEDLINE
DN 84096662
TI [Technic of lumbosacral graft in the surgical ***treatment*** of dysplastic spondylolisthesis]
Technique de la greffe trans-sacro-lombaire dans le traitement chirurgical du spondylolisthesis dysplasique.
AU Fessio B
SO REVUE DE CHIRURGIE ORTHOPEDIQUE ET REPARATRICE DE L'APPAREIL MOTEUR, (1983) 69 (7) 573-5.
Journal code: RMP, ISSN: 0035-1040.
CY France
DT Journal, Article: (JOURNAL ARTICLE)
LA French
FS Priority Journals
EM 198404
AB The authors describe a method of ***treatment*** for

spondylolisthesis using a posterior approach, reduction and fixation with Harrington rods and cortical fibular graft driven through the sacrum, across the lumbosacral ***intervertebral*** ***disc*** into the body of the 5th lumbar vertebra. The technique is completed by a postero-lateral graft. This technique avoids the need for an anterior approach.

L5 ANSWER 25 OF 28 MEDLINE
AN 83249474 MEDLINE
DN 83249474
TI Anterior ***intervertebral*** ***disc*** excision and bone grafting in cervical spondylotic myelopathy.
AU Zhang Z H, Yin H, Yang K, Zhang T, Dong F, Dang G, Lou S Q, Cai Q
SO SPINE, (1983 Jan-Feb) 8 (1) 16-9.
Journal code: DXK, ISSN: 0362-2436.
CY United States
DT Journal, Article: (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 198310
AB An analysis of 121 cases of cervical spondylotic myelopathy ***treated*** by anterior excision of the disc and fusion was undertaken. All patients were followed at least six months, and averaged 22 months. Results showed that 97.5% of patients had no aggravation of symptoms, 90.9% were improved, and 72.6% were able to resume normal activity. Surgical intervention can greatly improve the prospects of patients with severe cervical spondylotic myelopathy, and its use should not be lightly ruled out. Autografts yield higher fusion rates and better overall results than homologs. Selection of the number and level of discs to be excised depends upon clinical and roentgenographic indications, as well as the myelogram and the amount of fluid injected into the discs.

L5 ANSWER 26 OF 28 MEDLINE
AN 78247268 MEDLINE
DN 78247268
TI A technical modification of Cloward's posterior lumbar interbody fusion.
AU Lin P M
SO NEUROSURGERY, (1977 Sep-Oct) 1 (2) 118-24
Journal code: NZL, ISSN 0148-396X.
CY United States
DT Journal, Article: (JOURNAL ARTICLE)
LA English

FS Priority Journals

EM 197812

AB The concept of interbody (intercorporeal) fusion as a useful

treatment for ***intervertebral*** ***disc***

disease in the cervical area has been well received. Thirty-two years have passed

since Cloward first introduced his technique of posterior lumbar intervertebral fusion. The author believes that the delayed acceptance of

this procedure is due to fear of technical difficulties. A technical modification of Cloward's posterior lumbar interbody fusion is introduced

It entails better technique in controlling epidural bleeding by careful

positioning of the patient and the use of oxidized cellulose as a tampon

in the epidural space. The integrity of the facet is preserved through

more limited interlaminar approach. Osteosynthesis of the grafts is assured by multiple perforations of the cortical plate in accordance with

Robinson's principle utilized in cervical interbody fusion. The author

believes that the modification simplifies the Cloward posterior lumbar

interbody fusion. It also assures better stability after surgery by retention of the facet and lessening the dangers of settlement of the graft by preservation of the cortical plate. In a series of 75 cases, tomograms made 4 months after operation have shown a viable

graft with active osteosynthesis between the graft and the adjoining vertebral

bodies in 94%.

L5 ANSWER 27 OF 28 MEDLINE

AN 78204506 MEDLINE

DN 78204506

T1 Fracture dislocation of the cervical spine. Value of anterior approach

with bovine bone interbody fusion.

AU Goran A, Murthy K K

SO SPINE. (1978 Jun) 3 (2) 95-102.

Journal code: UXX. ISSN: 0362-2436.

CY United States

DT Journal, Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 197810

AB Twenty surgically ***treated*** cases of fracture dislocation of the

cervical spine are presented. All patients had hyperflexion injuries with

associated rupture of the ***intervertebral*** ***disc***

All patients were operated on through an anterior surgical approach. Ten

consecutive patients had interbody fusion with autogenous bone and ten

consecutive patients were fused anteriorly with bovine (Kiel) bone.

All patients' injuries fused satisfactorily. There was no significant

difference between the use of autogenous bone and bovine bone.

L5 ANSWER 28 OF 28 MEDLINE

AN 75134887 MEDLINE

DN 75134887

T1 Intervertebral bone ***implants*** following excision of protruded

lumbar discs.

AU Christensen L A, Scland B

SO JOURNAL OF NEUROSURGERY. (1975 Apr) 42 (4) 401-5.

Journal code: DJ3. ISSN: 0022-3085.

CY United States

DT Journal, Article; (JOURNAL ARTICLE)

LA English

FS Abridged Index Medicus Journals; Priority Journals

EM 197508

AB The authors describe a technique whereby a portion of the lamina removed

during exposure of an intervertebral lumbar disc protrusion is

implanted in the ***intervertebral*** ***disc***

space following disc excision. An analysis of 456 consecutive cases

operated on by this technique and followed from 1 to 10 years is presented. Of

the 418 patients followed, 92 per cent indicated they were able to return to

their normal activities and were satisfied with the result. Thirty percent

of the patients indicated they had required some conservative

treatment for recurrent episodes of back or leg pain. Ten

patients had subsequent back surgery; only one ***implant*** has

dislocated.

=> s intervertebral disc cell/#/ab,bi

14933 INTERVERTEBRAL/BI

26941 DISC/BI

1872652 CELL/BI

5401617 AB/FA

22 INTERVERTEBRAL DISC CELL/AB

((INTERVERTEBRAL(W)DISC(W)CELL.#/BI (L)

AB/FA)

14933 INTERVERTEBRAL/BI

26941 DISC/BI

1872652 CELL/BI

24 INTERVERTEBRAL DISC CELL/BI

((INTERVERTEBRAL(W)DISC(W)CELL.#/BI)

1872652 CELL/BI

24 INTERVERTEBRAL DISC CELL/BI

((INTERVERTEBRAL(W)DISC(W)CELL.#/BI)

L6 24 INTERVERTEBRAL DISC CELL/AB,BI

=> s l6 and implant?/ab,bi

129989 IMPLANT?/BI

5401617 AB/FA

84121 IMPLANT?/AB

(IMPLANT?/BI (L) AB/FA)

129989 IMPLANT?/BI

L7 0 L6 AND IMPLANT?/AB,BI

=> s l6 and model?/ab,bi

639631 MODEL?/BI

5401617 AB/FA

378081 MODEL?/AB

(MODEL?/BI (L) AB/FA)

639631 MODEL?/BI

L8 5 L6 AND MODEL?/AB,BI

=> d l-bis ab

YOU HAVE REQUESTED DATA FROM 5 ANSWERS -
CONTINUE? Y/(N)Y

L8 ANSWER 1 OF 5 MEDLINE

AN 200038628 MEDLINE

DN 20309886

T1 ***intervertebral*** ***disc*** ***cell*** death is dependent

on the magnitude and duration of spinal loading

AU Lotz J C, Chin J R

CS Orthopaedic Bioengineering Laboratory, Department of

Orthopaedic Surgery, University of California, San Francisco 94143-0514, USA.

jlolz@itsa.usf.edu

NC AR46173 (N/AM5)

SO SPINE. (2000 Jun 15) 25 (12) 1477-83.

Journal code: UXX. ISSN: 0362-2436.

CY United States

DT Journal, Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 200010

EIV 20001002

AB STUDY DESIGN: An in vivo study of the toxic consequences of

static compressive stress on the intervertebral disc. OBJECTIVES: To

determine

whether disc cell death is correlated with the magnitude and

duration of

spinal compressive loading. SUMMARY OF BACKGROUND

DATA: Static compression

in vivo has been demonstrated to induce cell death. Cell death, in

turn,

has been associated with disc degeneration in humans. There are

currently

no tolerance criteria for the intervertebral disc that combine both

biomechanical and biologic factors, although both have been implicated in cases of accelerated degeneration. METHODS: Mouse tail discs were loaded in vivo with an external compression device. Compressive stress was applied at one of two magnitudes (0.4 and 0.8 MPa) for 7 days, and at one additional magnitude (1.3 MPa) for 1, 3, and 7 days. Midsagittal sections of the discs were stained for apoptosis using the TdT-dUTP terminal nick-end labeling (TUNEL) reaction. Quantal analysis was used to correlate the extent of cell death to the magnitude and duration of loading. RESULTS: The probit transformation of the percentage of dying cells was proportional to the sum of the logarithmic transformations of the compressive stress and the time of loading. CONCLUSIONS: The results of this study demonstrate the feasibility of developing a quantitative correlation between spinal loading and disc degeneration. Such a correlation may be coupled in the future to existing engineering models that predict spinal loading in response to physical exposures and lead to improved definition of the bounds of healthy and unhealthy spinal loading and ultimately, refined guidelines for low back safety.

L8 ANSWER 2 OF 5 MEDLINE
AN 2000091755 MEDLINE
DN 20091755
TI Viscoelastic properties of ***intervertebral*** ***disc***
cells. Identification of two biomechanically distinct cell populations.

AU Gulak F, Ting-Beall H P, Baer A E, Trickey W R, Erickson G R, Setton L A
CS Department of Surgery, Duke University Medical Center, Durham, North Carolina, USA.
NC AR43876 (NIAMS)
AG15768 (NIA)
SO SPINE. (1999 Dec 1) 24 (23) 2475-83.
Journal code: UXX. ISSN: 0362-2436
CY United States
DT Journal Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 200004
EIV 20000403
AB STUDY DESIGN: A combined experimental and theoretical biomechanical study to quantify the mechanical properties of living cells of the porcine intervertebral disc. OBJECTIVES: To quantify zonal variations in the mechanical properties and morphology of cells isolated from the

intervertebral disc. SUMMARY OF BACKGROUND DATA: Cellular response to mechanical stimuli is influenced by the mechanical properties of cells and of the extracellular matrix. Significant zonal variations in intervertebral disc matrix properties have been reported. No information is currently available on the corresponding regional variations in the mechanical properties of ***intervertebral*** ***disc*** ***cells***, despite evidence of significant differences in cellular phenotype and biologic response to loading. METHODS: The micropipette aspiration test was used in combination with a three-parameter viscoelastic solid model to measure the mechanical properties of cells isolated from the annulus fibrosus, transition zone, and nucleus pulposus. RESULTS: ***Intervertebral*** ***disc*** ***cells*** exhibited viscoelastic solid behaviors. Highly significant differences were observed in the morphology, cytoskeletal arrangement, and biomechanical properties of the nucleus pulposus cells as compared with annulus fibrosus or transition zone cells. Cells of the nucleus pulposus were approximately three times stiffer and significantly more viscous than cells of the annulus fibrosus or transition zone. CONCLUSIONS: The findings of this study provide new evidence for the existence of two biomechanically distinct cell populations in the intervertebral disc. These differences in mechanical behavior may be related to observed differences in the cytoskeletal architecture between these cells, and may further play an important role in the development, maintenance, and degeneration of the intervertebral disc.

L8 ANSWER 3 OF 5 MEDLINE
AN 1999164907 MEDLINE
DN 99164907
TI Cyclic mechanical stretch stress increases the growth rate and collagen synthesis of nucleus pulposus cells in vitro.

AU Matsumoto T, Kawakami M, Kurihaya K, Takenaka T, Tanaka T
CS Department of Orthopedic Surgery, Wakayama Medical College, Japan.
tac@wakayama-mcd.ac.jp
SO SPINE. (1999 Feb 15) 24 (4) 315-9
Journal code: UXX. ISSN: 0362-2436
CY United States
DT Journal Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199907

EW 19990701
AB STUDY DESIGN: A rabbit model designed to investigate the effects of applied cyclic tensile stress on the cell division rate and the collagen synthesis in the rabbit nucleus pulposus cells in vitro. OBJECTIVE: To evaluate the effects of mechanical stress on nucleus pulposus cells, thus adding to the understanding of the adaptation of the intervertebral disc to mechanical stress. SUMMARY OF BACKGROUND DATA: ***Intervertebral*** ***disc*** ***cells*** in vivo are exposed to a multitude of physical forces during physical motion. Although it is known that in intervertebral disc disease, a common pathway of disc degeneration is mechanical stress on the nucleus pulposus or the annulus fibrosus or both, the underlying mechanism has been less well defined. METHODS: Nucleus pulposus cells were isolated from 4-week-old Japanese white rabbits. These cells were subjected to the mechanical cyclic stretch stress using a computerized, pressure-operated instrument that physically deformed the cells. The DNA synthesis rate, collagen synthesis rate, and cell cycle progression were measured. RESULTS: Cyclic tensile stretch increased the DNA synthesis rate in nucleus pulposus cells and in the population of cells in the S phase of the cell cycle during 1 to 2 days of subjugation to stress. Cyclic tensile stretch also increased collagen protein synthesis in nucleus pulposus cells during 1 to 4 days of stress. CONCLUSIONS: Mechanical stress on nucleus pulposus cells promotes the proliferation of cells and alters the properties of ***intervertebral*** ***disc*** ***cells***. This study may reflect the adaptation of the intervertebral disc to increased motion and stress.

L8 ANSWER 4 OF 5 MEDLINE
AN 1998018417 MEDLINE
DN 98018417
TI Type-II collagen gene expression is transiently upregulated in experimentally induced degeneration of rabbit intervertebral disc.

AU Takashi H, Nemo O, Shioh N, Kikuchi T, Yamada H, Yamagishi M, Yabe Y
CS Department of Orthopaedic Surgery, National Defense Medical College, Keio University School of Medicine, Tokyo, Japan.

SO JOURNAL OF ORTHOPAEDIC RESEARCH, (1997 Jun) 15 (4) 528-38.

Journal code: JIQ, ISSN: 0736-0266.

CY United States

DT Journal, Article, (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199801

EW 19980104

AB To clarify phenotypic alterations of ***intervertebral***

disc

cells during the repair process, we cloned partial type-II collagen cDNA from rabbits and analyzed the level of expression of type-II

collagen mRNA in disc degeneration. An animal ***model*** was created

by surgical denudation of rabbit intervertebral discs through an extraperitoneal approach. Eight animals each from an experimental

and a

control group were killed at 2, 4, 8, or 16 weeks postoperatively,

and the

disc samples were used for this study. Round chondrocyte-like cells that

filled the herniated space showed intense signal of type-II collagen mRNA

and significant pericellular immunostaining of type-II collagen but

no

clear staining of type-I collagen. Northern blot analysis revealed that

the expression of type-II collagen mRNA of the repair disc cells was

transiently increased at 4 weeks postoperatively. The cells were

able to

change their morphology in response to mechanical stimulation by surgical

denudation and to induce a significant increase in the gene expression

of type-II collagen at an early phase of disc degeneration. The

present

results indicate the transient enhancement of repair activity in the degenerative process of injured fibrocartilage.

L8 ANSWER 5 OF 5 MEDLINE

AN 96093339 MEDLINE

DN 96093339

T1 Distribution of the basic fibroblast growth factor and its receptor

gene

expression in normal and degenerated rat intervertebral discs.

AU Nagano T, Yonemitsu K, Miyamoto S, Tohyama M, Ono K

CS Department of Orthopaedic Surgery, Osaka University Medical

School, Japan.

SO SPINE, (1995 Sep 15) 20 (18) 1972-8.

Journal code: UXX, ISSN: 0362-2436

CY United States

DT Journal, Article, (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199605

AB STUDY DESIGN: Using a rat spondylosis ***model***, the

distributions

of cells expressing the basic fibroblast growth factor and its receptor

were investigated in normal and degenerated intervertebral discs.

Cell-proliferating activity in degenerated discs was also assessed.

OBJECTIVES: This study was conducted to determine whether

basic fibroblast

growth factor is related to intervertebral disc degeneration.

SUMMARY OF

BACKGROUND DATA: Basic fibroblast growth factor stimulates

proliferation

and matrix synthesis of cultured ***intervertebral***

disc

cells. METHODS: Immunohistochemistry and in situ

hybridization

histochemistry were conducted to detect cells with basic fibroblast

growth

factor-like immunoreactivity and fibroblast growth factor receptor

messenger RNA, respectively. Cell-proliferating activity was

evaluated by

AgNOR staining. RESULTS: In degenerated discs, round

chondrocytes with

basic fibroblast growth factor-like immunoreactivity and fibroblast

growth

factor receptor messenger RNA are scattered instead of

spindle-shaped

cells in the normal annulus (normal annular cells), which are devoid

of

basic fibroblast growth factor-like immunoreactivity and fibroblast

growth

factor receptor messenger RNA. The proliferating activity of these

chondrocytes is suggested to exceed that of normal annular cells.

CONCLUSION: Basic fibroblast growth factor is suggested to

promote

proliferation of chondrocytes in degenerated discs in an autocrine or

paracrine manner. Basic fibroblast growth factor may be related to

intervertebral disc degeneration as a proliferation-stimulating factor

of

chondrocytes that replace normal annular cells during disc

degeneration.

=> s 18

=> s 18

2 FILES SEARCHED...

'AB' IS NOT A VALID FIELD CODE

L9 18 L8

=> dup rem 19

PROCESSING COMPLETED FOR L9

L10 8 DUP REM 19 (10 DUPLICATES REMOVED)

=> d 1 - bib ab

YOU HAVE REQUESTED DATA FROM 8 ANSWERS -

CONTINUE? Y(N)/Y

L10 ANSWER 1 OF 8 MEDLINE

AN 2000389628 MEDLINE

DN 20309886

TI ***intervertebral*** ***disc*** ***cell*** death is

dependent

on the magnitude and duration of spinal loading.

AU Lotz J C, Chin J R

CS Orthopaedic Bioengineering Laboratory, Department of

Orthopaedic Surgery,

University of California, San Francisco 94143-0514, USA.

jlotsz@itsa.ucsf.edu

NC AR46173 (NIAMS)

SO SPINE, (2000 Jun 15) 25 (12) 1477-83.

Journal code: UXX, ISSN: 0362-2436.

CY United States

DT Journal, Article, (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 200010

EW 20001002

AB STUDY DESIGN: An in vivo study of the toxic consequences of

static

compressive stress on the intervertebral disc. OBJECTIVES: To

determine

whether disc cell death is correlated with the magnitude and

duration of

spinal compressive loading. SUMMARY OF BACKGROUND

DATA: Static compression

in vivo has been demonstrated to induce cell death. Cell death, in

turn,

has been associated with disc degeneration in humans. There are

currently

no tolerance criteria for the intervertebral disc that combine both

biomechanical and biologic factors, although both have been

implicated in

cases of accelerated degeneration. METHODS: Mouse tail discs

were loaded

in vivo with an external compression device. Compressive stress

was

applied at one of two magnitudes (0.4 and 0.8 MPa) for 7 days, and

at one

additional magnitude (1.3 MPa) for 1, 3, and 7 days. Midsagittal

sections

of the discs were stained for apoptosis using the TdT-DUTP

terminal

nick-end labeling (TUNEL) reaction. Quantal analysis was used to

correlate

the extent of cell death to the magnitude and duration of loading.

RESULTS: The probit transformation of the percentage of dying

cells was

proportional to the sum of the logarithmic transformations of the

compressive stress and the time of loading. CONCLUSIONS: The

results of

this study demonstrate the feasibility of developing a quantitative

correlation between spinal loading and disc degeneration. Such a correlation may be coupled in the future to existing engineering models that predict spinal loading in response to physical exposures and lead to improved definition of the bounds of healthy and unhealthy spinal loading, and ultimately, refined guidelines for low back safety.

L10 ANSWER 2 OF 8 EMBASE COPYRIGHT 2000 ELSEVIER SCI. B.V.
AN 2000263727 EMBASE

TI The micromechanical environment of intervertebral disc cells. Effect of matrix anisotropy and cell geometry predicted by a linear model.

AU Baer A.E.; Setton L.A.
CS A.E. Baer, Department of Biomedical Engineering, Duke University, Durham,
NC 27708, United States

SO Journal of Biomechanical Engineering, (2000) 122/3 (245-251).
Refs: 34

ISSN: 0148-0731 CODEN: JBENDY

CY United States

DT Journal Article

FS 027 Biophysics, Bioengineering and Medical Instrumentation

LA English

SL English
AB Cells of the intervertebral disc exhibit spatial variations in phenotype and morphology that may be related to differences in their local mechanical environments. In this study, the stresses, strains, and dilations in and around cells of the intervertebral disc were studied

with an analytical model of the cell as a mechanical inclusion embedded in a transversely isotropic matrix. In response to tensile loading of the matrix, the local mechanical environment of the cell differed among the anatomic regions of the disc and was strongly influenced by changes in both matrix anisotropy and parameters of cell geometry. The results of this study suggest that the local cellular mechanical environment may play a role in determining both cell morphology in situ and the inhomogeneous response to mechanical loading observed in cells of the disc.

L10 ANSWER 3 OF 8 EMBASE COPYRIGHT 2000 ELSEVIER SCI. B.V.
AN 2000057640 EMBASE

TI Changes with age in proteoglycan synthesis in cells cultured in vitro from the inner and outer rabbit annulus fibrosus: Responses to interleukin-1 and interleukin-1 receptor antagonist protein.

AU Maeda S.; Kokubun S.
CS Dr. S. Maeda, Department of Orthopaedic Surgery, Tohoku University School of Medicine, Sendai 980-8574, Japan.
s-maeda@mail.cc.tohoku.ac.jp
SO Spine, (15 Jan 2000) 25/2 (166-169).
Refs: 25

ISSN: 0362-2436 CODEN: SPINDD

CY United States

DT Journal Article

FS 033 Orthopedic Surgery

LA English

SL English
AB Study Design: Proteoglycan synthesis was examined in cells isolated from the inner and outer annulus fibrosus of young and old rabbits. Their responses to interleukin-1 alpha, and interleukin-1 receptor antagonist protein were investigated. Objectives: To evaluate the age-related changes and the anatomically related differences in the function of intervertebral disc cells. Summary

Background Data: Proteoglycan content in the human intervertebral disc decreases with age. Age-related changes in intervertebral disc cells. disc

decreases with age. Age-related changes in intervertebral disc cells. disc

fully investigated. Methods: Japanese white rabbits aged 2 months (young group) and 3 years (old group) were used. The inner and outer layer of the annulus fibrosus were separated. The proteoglycan synthesis and release were measured in cells cultured with or without human recombinant interleukin-1 alpha, and interleukin-1 receptor antagonist protein. Results: The proteoglycan synthesis significantly decreased and the release rate significantly increased in the old rabbits, compared with the young ones. In the inner annulus, the inhibition of proteoglycan synthesis due to interleukin-1 alpha was greater in the old rabbits than in the young ones. In the old rabbits, interleukin-1-induced inhibition was more pronounced in the inner annulus than in the outer annulus. Interleukin-1 receptor antagonist protein suppressed inhibition of proteoglycan synthesis by interleukin-1 alpha in the two layers in both age groups. Conclusions: Both the decline in proteoglycan synthesis and the increased cell sensitivity to interleukin-1 alpha with age may contribute to the degradation of discs. The increase in cell response to interleukin-1 alpha in the inner annulus of rabbits may explain why the inner annulus and nucleus pulposus degrade earlier than the outer

annulus in human discs. Interleukin-1 receptor antagonist protein could be useful in inhibiting the degradation of the disc.

L10 ANSWER 4 OF 8 MEDLINE
AN 2000091755 MEDLINE
DN 2000/1755

TI Viscoelastic properties of intervertebral disc cells. Identification of two biomechanically distinct cell populations.

AU Guilak F.; Ting-Bell H.P.; Baer A.E.; Truckey W.R.; Erickson G.R.; Setton L.A.
CS Department of Surgery, Duke University Medical Center, Durham, North Carolina, USA.
NC AR43876 (NIAMS)
AG15768 (NIA)

SO SPINE, (1999 Dec 1) 24 (23) 2475-83.
Journal code: UXK. ISSN: 0362-2436.

CY United States
DT Journal Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 200004

EW 20000403

AB STUDY DESIGN: A combined experimental and theoretical biomechanical study to quantify the mechanical properties of living cells of the porcine intervertebral disc. OBJECTIVES: To quantify zonal variations in the mechanical properties and morphology of cells isolated from the intervertebral disc. SUMMARY OF BACKGROUND DATA: Cellular response to mechanical stimuli is influenced by the mechanical properties of cells and of the extracellular matrix. Significant zonal variations in intervertebral disc matrix properties have been reported. No information is currently available on the corresponding regional variations in the mechanical properties of intervertebral disc cells. disc

cells, despite evidence of significant differences in cellular phenotype and biologic response to loading. METHODS: The microtensile aspiration test was used in combination with a three-parameter viscoelastic solid model to measure the mechanical properties of cells isolated from the annulus fibrosus, transition zone, and nucleus pulposus. RESULTS: Intervertebral disc cells exhibited viscoelastic solid behaviors. Highly significant differences were observed in the morphology, cytoskeletal arrangement, and biomechanical properties of the nucleus pulposus cells as compared with annulus fibrosus or transition zone cells. Cells of the nucleus

annulus fibrosus or transition zone cells. Cells of the nucleus

pulpus

were approximately three times stiffer and significantly more viscous than

cells of the annulus fibrosus or transition zone. CONCLUSIONS:

The findings

of this study provide new evidence for the existence of two biomechanically distinct cell populations in the intervertebral disc.

These differences in mechanical behavior may be related to observed

differences in the cytoskeletal architecture between these cells, and may

further play an important role in the development, maintenance, and

degeneration of the intervertebral disc.

L10 ANSWER 5 OF 8 BIOSIS COPYRIGHT 2000 BIOSIS

AN 1999-45012 BIOSIS

DN PREV19990450112

TI The effect of hydrostatic pressure on intervertebral disc metabolism.

AU Hutton, William C. (1); Elmer, William A.; Boden, Scott D.; Hyon, Steven;

Tonbakke, Yasumitsu; Tomita, Kaiauro; Hair, Gregory A.

CS (1) Emory Spine Center, 2165 North Decatur Road, Decatur, GA, 30033 USA

SO Spine, (Aug. 1, 1999) Vol. 24, No. 15, pp. 1507-1515.

ISSN: 0362-2436.

DT Article

LA English

AB Study Design. By the use of pressure vessels, hydrostatic

pressure was applied to ***intervertebral*** ***disc*** ***cells***

cultured in an alginate. Objective. To test the hypothesis that hydrostatic pressure directly affects the synthesis of collagen and proteoglycan by the ***intervertebral*** ***disc***

cells

Summary of Background Data. The influence of compression (both

hydrostatic and mechanical) on chondrocyte metabolism was

examined in a number of earlier studies. However, in most of these studies, articular

cartilage, not intervertebral disc, was used, and in none of these was hydrostatic pressure applied to ***intervertebral***

disc

cells cultured in alginate. Methods. Fresh cells were harvested

from the lumbar intervertebral discs of dogs. Before their suspension in

an alginate gel system, the cells were plated and expanded until they

reached confluence. Then, by use of the alginate gel system, the cells

were exposed (for up to 9 days) to specific values of hydrostatic pressure

inside two stainless steel pressure vessels. One vessel was kept at 1

MPa

and the other at atmospheric pressure. The effects of 1 MPa were compared

against atmospheric pressure by measuring the incorporation of (3H)-proline and (35S)-sulfate into collagen and proteoglycans, respectively, for the annulus cells and nucleus cells separately, and

by determining whether this incorporation was reflected by changes in the

levels of mRNA for aggrecan and Types I and II collagen. Results. Comparisons with atmospheric pressure yielded the following

findings: 1) In the incorporation studies, the nucleus and annulus cells exhibited

a differential response to a hydrostatic pressure of 1 MPa. Collagen

and proteoglycan syntheses were stimulated in the nucleus cells and

inhibited in the annulus cells. 2) There was no significant increase in cell proliferation, as measured by DNA content, at 1 MPa for either the

annulus or nucleus cells. 3) The mRNA levels of collagen (Col 1A1 and Col 2A1) and

aggrecan increased at 1 MPa in both the nucleus and annulus cells.

Conclusions. Hydrostatic pressure directly affects the synthesis of collagen and proteoglycan by the ***intervertebral***

disc ***cells***

L10 ANSWER 6 OF 8 MEDLINE DUPLICATE 3

AN 1999164907 MEDLINE

DN 99164907

TI Cyclic mechanical stretch stress increases the growth rate and collagen

synthesis of nucleus pulposus cells in vitro

AU Matsumoto T; Kawakami M; Kuribayashi K; Takemaka T; Tanaka T

CS Department of Orthopedic Surgery, Wakayama Medical College, Japan.

SO SPINE, (1999 Feb 15) 24 (4) 315-9.

Journal code: DXK. ISSN: 0362-2436.

CY United States

DT Journal Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 19990701

AB STUDY DESIGN: A rabbit ***model*** designed to investigate the effects

of applied cyclic tensile stress on the cell division rate and the collagen synthesis in the rabbit nucleus pulposus cells in vitro.

OBJECTIVE: To evaluate the effects of mechanical stress on nucleus pulposus cells, thus adding to the understanding of the

intervertebral disc to mechanical stress. SUMMARY OF

BACKGROUND DATA:

intervertebral ***disc*** ***cells*** in vivo are exposed

to a multitude of physical forces during physical motion. Although it is

known that in intervertebral disc disease, a common pathway of disc

degeneration is mechanical stress on the nucleus pulposus or the annulus

fibrosus or both, the underlying mechanism has been less well defined.

METHODS: Nucleus pulposus cells were isolated from 4-week-old Japanese

white rabbits. These cells were subjected to the mechanical cyclic stretch

stress using a computerized, pressure-operated instrument that physically

deformed the cells. The DNA synthesis rate, collagen synthesis rate, and

cell cycle progression were measured. RESULTS: Cyclic tensile stretch

increased the DNA synthesis rate in nucleus pulposus cells and in the

population of cells in the S phase of the cell cycle during 1 to 2

days of subjugation to stress. Cyclic tensile stretch also increased collagenous

protein synthesis in nucleus pulposus cells during 1 to 4 days of stress.

CONCLUSIONS: Mechanical stress on nucleus pulposus cells promotes the

proliferation of cells and alters the properties of ***intervertebral***

disc ***cells***. This study may reflect the adaptation of the

intervertebral disc to increased motion and stress.

L10 ANSWER 7 OF 8 MEDLINE DUPLICATE 4

AN 1998018417 MEDLINE

DN 98018417

TI Type-II collagen gene expression is transiently upregulated in experimentally induced degeneration of rabbit intervertebral disc.

AU Takashi H; Nemoto O; Shioa M; Kikuchi T; Yanada H; Yamagishi M; Yabe Y

CS Department of Orthopaedic Surgery, National Defense Medical College, Keio

University School of Medicine, Tokyo, Japan.

SO JOURNAL OF ORTHOPAEDIC RESEARCH, (1997 Jul) 15 (4) 528-38.

Journal code: JIQ. ISSN: 0736-0266

CY United States

DT Journal Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 19980104

AB To clarify phenotypic alterations of ***intervertebral***

disc
 cells during the repair process, we cloned partial type-II collagen cDNA from rabbits and analyzed the level of expression of type-II collagen mRNA in disc degeneration. An animal ***model*** was created by surgical denudation of rabbit intervertebral discs through an experimental approach. Eight animals each from an experimental and a control group were killed at 2, 4, 8, or 16 weeks postoperatively, and the disc samples were used for this study. Round chondrocyte-like cells that filled the herniated space showed intense signal of type-II collagen mRNA and significant pericellular immunostaining of type-II collagen but no clear staining of type-I collagen. Northern blot analysis revealed that the expression of type-II collagen mRNA of the repair disc cells was transiently increased at 4 weeks postoperatively. The cells were able to change their morphology in response to mechanical stimulation by surgical denudation and to induce a significant increase in the gene expression of type-II collagen at an early phase of disc degeneration. The present results indicate the transient enhancement of repair activity in the degenerative process of injured fibrocartilage.

L10 ANSWER 8 OF 8 MEDLINE DUPLICATE 5
 AN 96093339 MEDLINE
 DN 96093339
 TT Distribution of the basic fibroblast growth factor and its receptor gene expression in normal and degenerated rat intervertebral discs. AU Nagano T, Yonemoto K, Miyamoto S, Tohyama M, Ono K CS Department of Orthopaedic Surgery, Osaka University Medical School, Japan. SO SPINE. (1995 Sep 15) 20 (18) 1972-8. Journal code: UXK. ISSN: 0362-2436.
 CY United States
 DT Journal, Article, (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 AB 199605
 EN STUDY DESIGN: Using a rat spondylosis ***model***, the distributions of cells expressing the basic fibroblast growth factor and its receptor were investigated in normal and degenerated intervertebral discs. Cell-proliferating activity in degenerated discs was also assessed. OBJECTIVES: This study was conducted to determine whether basic fibroblast growth factor is related to intervertebral disc degeneration.

SUMMARY OF BACKGROUND DATA: Basic fibroblast growth factor stimulates proliferation and matrix synthesis of cultured ***intervertebral*** disc***. ***cells*** METHODS: Immunohistochemistry and in situ hybridization histochemistry were conducted to detect cells with basic fibroblast growth factor-like immunoreactivity and fibroblast growth factor receptor messenger RNA, respectively. Cell-proliferating activity was evaluated by AgNOR staining. RESULTS: In degenerated discs, round chondrocytes with basic fibroblast growth factor-like immunoreactivity and fibroblast growth factor receptor messenger RNA are scattered instead of spindle-shaped cells in the normal annulus (normal annular cells), which are devoid of basic fibroblast growth factor-like immunoreactivity and fibroblast growth factor receptor messenger RNA. The proliferating activity of these chondrocytes is suggested to exceed that of normal annular cells. CONCLUSION: Basic fibroblast growth factor is suggested to promote proliferation of chondrocytes in degenerated discs in an autocrine or paracrine manner. Basic fibroblast growth factor may be related to intervertebral disc degeneration as a proliferation-stimulating factor of chondrocytes that replace normal annular cells during disc degeneration.

=> s annulus/ab.bi
 2789 ANNULUS/BI
 5401617 AB/FA
 2629 ANNULUS/AB
 (ANNULUS/BI (L) AB/FA)
 2789 ANNULUS/BI
 L11 2789 ANNULUS/AB,BI
 => s ill and (implant? or transplant?)ab.bi
 129989 IMPLANT?/BI
 5401617 AB/FA
 84121 IMPLANT?/AB
 (IMPLANT?/BI (L) AB/FA)
 129989 IMPLANT?/BI
 281209 TRANSPLANT?/BI
 5401617 AB/FA
 93564 TRANSPLANT?/AB
 (TRANSPLANT?/BI (L) AB/FA)
 281209 TRANSPLANT?/BI
 L12 413 L11 AND (IMPLANT? OR TRANSPLANT?)/AB,BI

=> s ill2 and disc/ab.bi
 26941 DISC/BI
 5401617 AB/FA
 15733 DISC/AB
 (DISC/BI (L) AB/FA)
 26941 DISC/BI
 L13 16 L12 AND DISC/AB,BI
 => d l-bib ab
 YOU HAVE REQUESTED DATA FROM 16 ANSWERS - CONTINUE? Y/N/Y

L13 ANSWER 1 OF 16 MEDLINE
 AN 2000332785 MEDLINE
 DN 200332785
 TT Mitral valve replacement in the presence of massive posterior annular calcification. AU Lin P Y, Kan C D, Luo C Y, Yang Y J CS Department of Cardiovascular Surgery, Chuai Christian Hospital, Taiwan. R.O.C. SO JOURNAL OF CARDIAC SURGERY. (1999 Jul-Aug) 14 (4) 266-9. Journal code: BEN. ISSN: 0886-0440.
 CY United States
 DT Journal, Article, (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EN 200009
 EW 20000904
 AB Replacement of the mitral valve in the presence of extensive calcification of the posterior ***annulus*** is a technical challenge. The heavily calcified ***annulus*** often results in difficulties of sealing the prosthesis and later periprosthetic leakage. A radical calcium debriement may leave a friable and thin ***annulus*** that contributes to the risks of prosthesis dehiscence and ventricular perforation. To avoid technical difficulties and associated catastrophic complications, we devised a new technique of mitral valve replacement that allows a surgeon to ***implant*** a prosthesis securely. This technique involves inserting a larger single tilting ***disc*** mechanical valve (Medtronic Hall ***disc***) with intra-atrial anchorage over the posterior sector of the calcified ***annulus***, orienting the working (major) orifice of the mechanical valve anteriorly, and thereby tilting the lesser occluder segment of the ***disc*** upward into the annulus

and away from the calcification in diastole. By utilizing this method, we have successfully performed mitral valve replacement in two patients who exhibited massive calcification of the posterior mitral ***annulus***

Postoperative transthoracic echocardiography showed excellent hemodynamic performance of the ***implanted*** valves. We therefore recommend this simple, safe, and time-saving procedure as a feasible method to deal with this surgical dilemma.

L13 ANSWER 2 OF 16 MEDLINE
AN 1999304385 MEDLINE
DN 99304385
TI ***Disc*** extrusion in a Rotweiler dog with caudal cervical spondylomyelopathy after failure of intervertebral distraction/stabilisation.

AU Marchewsky A M, Richardson J L
CS Division of Veterinary and Biomedical Sciences, Murdoch University,
Western Australia

SO AUSTRALIAN VETERINARY JOURNAL, (1999 May) 77 (5) 293-7.
Journal code: 91E, ISSN: 0005-0423.

CY Australia
DT Journal, Article, (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199909
EW 19990903
AB A Rotweiler dog was presented with an 8 week history of hindlimb ataxia.
Neurological examination localised the lesion to the cervical spinal cord.

Myelography demonstrated dynamic compressive lesions at C5-6 and C6-7
consistent with a diagnosis of caudal cervical spondylomyelopathy.
Distraction/stabilisation of both discs was performed using interbody polymethyl methacrylate. Both ***implants*** subsequently failed

leading to extrusion of the remaining dorsal ***annulus*** fibrosis of the C5-6 intervertebral ***disc*** and nonambulatory tetraparesis. A ventral slot combined with distraction/stabilisation using screws and polymethyl methacrylate was performed and resulted in nearly full neurological recovery.

L13 ANSWER 3 OF 16 MEDLINE
AN 1998291890 MEDLINE
DN 98291890
TI Intervertebral ***disc*** distraction with a laparoscopic anterior

spinal fusion system.

AU Nibu K, Panjabi M M, Oakland T, Cholewicki J
CS Department of Orthopaedics, Yamaguchi University School of Medicine,
Japan.

NC RO1-AR39209 (NIAMS)
SO EUROPEAN SPINE JOURNAL, (1998 7 (2) 142-7.
Journal code: B9Y, ISSN: 0940-6719.

CY GERMANY, Germany, Federal Republic of
DT Journal, Article, (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199810

AB The BAK spinal fusion system has been applied to laparoscopic anterior lumbar interbody fusion. The system, consisting of a pair of cylindrical ***implants*** with threads, placed symmetrically about the sagittal plane, functions by tensioning the ***annulus*** fibrosis.

Cylindrical plugs of increasing size are inserted prior to the ***implant*** placement. As the procedure may affect spinal posture and ***disc*** height, we measured changes due to incremental plug insertion using human cadaveric spine specimens (L5-S1, n = 4). Multi-directional flexibility of the construct was also measured as a function of plug size. The ***disc*** height change was found to increase initially and then to level off at 13-mm diameter plugs. In the sagittal plane, the intervertebral posture first shifted towards kyphotic then came back to the initial lordotic posture with plugs of bigger size. However, changes in ***disc*** height and spine posture were not statistically significant. Comparing the neutral zone (NZ) flexibility after inserting the plugs to the intact values, neither the flexion/extension nor the axial rotation NZ showed any significant change. In lateral bending, the NZ decreased after the insertion of 13-mm plugs (p < 0.05).

Insertion of plugs of increasing size from 9 mm to 12 mm decreased the range of motion (ROM) in all directions (p < 0.05). Insertion of 13-mm and 14-mm plugs decreased the flexion/extension and lateral bending ROM, but not the axial rotation ROM, probably indicating some injury to the ***annulus*** fibers.

L13 ANSWER 4 OF 16 MEDLINE
AN 97379586 MEDLINE
DN 97379586

TI Preservation of anterior and posterior leaflet in mitral valve replacement with a tilting- ***disc*** valve [see comments].

CM Comment in: Ann Thorac Surg 1998 Jun;56(6):1840-1
Comment in: Ann Thorac Surg 1999 Jan;67(1):293-4

AU Choh J H
CS Department of Surgery, Sherman Hospital, Elgin, Illinois, USA.
SO ANNALS OF THORACIC SURGERY, (1997 Jul) 64 (1) 271-3.
Journal code: 683, ISSN: 0003-4975.

CY United States
DT Journal, Article, (JOURNAL ARTICLE)
LA English
FS Abridged Index Medicus Journals, Priority Journals
EM 199710

AB An operative technique for mitral valve replacement with preservation of chordae tendineae to both the anterior and posterior leaflets is described. The anterior mitral valve leaflet is completely detached from the ***annulus*** and divided into three to four islands of tissue, each with attached chordae tendineae. These islands are transposed under the posterior leaflet and secured with 4-0 polypropylene sutures.

The posterior leaflet is completely preserved with no division or manipulation. This technique allows safe ***implantation*** of tilting- ***disc*** or bileaflet prostheses with excellent preservation of left ventricular function.

L13 ANSWER 5 OF 16 MEDLINE
AN 97283038 MEDLINE
DN 97283038

TI Intervertebral ***disc*** autografting in a bipedal animal model.
AU Luk K D, Ruan D K, Chow D H, Leong J C
CS Department of Orthopaedic Surgery, University of Hong Kong, China.
SO CLINICAL ORTHOPAEDICS AND RELATED RESEARCH, (1997 Apr) (337) 13-26.
Journal code: DFFY, ISSN: 0009-921X.

CY United States
DT Journal, Article, (JOURNAL ARTICLE)
LA English
FS Abridged Index Medicus Journals, Priority Journals
EM 199708
EW 19970801

AB Fusion of the spine while restoring stability of the spinal segment, fails to preserve spinal mobility. Long term complications of accelerated degeneration in the neighboring segments have been reported. The present study explores the possibility of intervertebral ***disc*** autografting in a bipedal animal model by isolating a lumbar ***disc*** together with the adjacent end plates and repositioning it with

minimal internal fixation. Fourteen Rhesus monkeys were sacrificed at 2, 4, 6, and 12 months after surgery and the grafted discs were examined radiologically, biochemically, pathologically, and biomechanically. Healing of the bony end plate was seen between 2 to 4 months postoperatively. There was early loss of ***disc*** height at 2 and 4 months but there was a suggestion of some reconstitution up to 12 months. There was minimal evidence of gross degeneration at all stages. Gradual loss of water content was found in the ***annulus*** and the nucleus. The nucleus pulposus seemed to be able to reaccumulate proteoglycan after an initial drop in the first 4 months. There was significant increase in hydroxyproline content in the ***annulus*** fibrosis and the nucleus pulposus. Biomechanically, the grafted ***disc*** showed hypermobility in the first 4 months but gradually became stabilized with time. Results from this study suggested that a fresh intervertebral ***disc*** autograft could survive a period of ischemia. Although the physiology of the ***disc*** was deranged, it was able to preserve a certain degree of segmental mobility without sacrificing stability. Further studies are required to validate these results and the field of ***disc*** allografting should be explored.

L13 ANSWER 6 OF 16 MEDLINE
 DN 97273538 MEDLINE
 TI Retrodiscal fibrocartilaginous mass. Report of a case.
 AU Chen T Y, Lui T N
 CS Department of Neurosurgery, Chang Gung Medical College, Taoyuan, Taiwan
 SO SPINE. (1997 Apr 15) 22 (8) 920-3.
 Journal code: UNK. ISSN: 0362-2436
 CY United States
 DT Journal; Article. (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 199709
 EW 19970901
 AB STUDY DESIGN: This is a report of a 63-year-old woman with a retrodiscal fibrocartilaginous mass and myelopathy. OBJECTIVE: To describe the pathophysiology of the retrodiscal fibrocartilaginous mass formation and its association with the C2-C3 ***disc***. SUMMARY OF BACKGROUND DATA:

High cervical ***disc*** protrusion is an uncommon condition and presents even more rarely as a craniovertebral junction mass with spinal cord compression. Uncertainty remains regarding the etiology of its formation in the retrodiscal region. METHODS: The patient underwent surgical intervention with transoral decompression and posterior C1-C2 skeletal fusion with bony graft. RESULTS: On the basis of dynamic plain radiographs, magnetic resonance imaging, and surgical pathology, the origin of the mass may have been the C2-C3 ***disc***. CONCLUSIONS: We hypothesized that the mechanism underlying the posterior odontoid fibrocartilaginous mass with spinal cord involvement most likely originate upward migration of the C2-C3 ***annulus*** fragment to the atlantoaxial joint as a result of aging. Secondary fibrocartilaginous metaplasia plays a major role in creating such ***disc***-like material. To prevent unrecoverable myelopathy, early detection and anterior decompression with posterior C1-C2 skeletal fixation and bony fusion are the best treatment methods.

L13 ANSWER 7 OF 16 MEDLINE
 AN 95367733 MEDLINE
 DN 95367733
 TI Materials and design concepts for an intervertebral ***disc*** spacer.
 II. Multidiameter composite design.
 AU Vuono-Hawkins M, Langrana N A, Parsons J R, Lee C K, Zimmerman M C
 CS University of Medicine and Dentistry of New Jersey, New Jersey Medical School, Section of Orthopaedic Surgery, Newark 07103, USA.
 SO JOURNAL OF APPLIED BIOMATERIALS. (1995 Summer) 6 (2) 117-23.
 Journal code: BCT. ISSN: 1045-4861.
 CY United States
 DT Journal; Article. (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 199511
 AB The main function of the intervertebral ***disc*** is to transmit and attenuate compressive and torsional forces, and stabilize the intervertebral joint. Unfortunately, the ***disc*** may be displaced or damaged due to trauma or disease causing the nucleus to herniate and protrude into the vertebral canal or intervertebral foramen. Pressure on the spinal nerve may cause pain or paralysis in the area of its distribution. At present, the surgical procedures used to alleviate this

condition include ***disc*** excision, and/or spinal fusion. A more desirable situation would involve removing the nucleus pulposus and part or all of the ***annulus*** fibrosis and ***implanting*** a suitable biofunctional equivalent. Such a prosthesis should attenuate stresses and prevent abnormal stress at adjacent intervertebral joints.

Maintenance of normal ***disc*** height would prevent impingement of the posterior facet joints and facet joint syndrome. In a previous companion paper (J. Applied Biomater. 5:125-132, 1994), the mechanical behavior of ***disc*** prostheses manufactured from fiber reinforced, elastomeric thermoset resins were examined. In order to develop devices which were more practical from a manufacturing standpoint and extremely reproducible, the fiber reinforced thermoset resins were replaced by multi-diameter thermoplastic elastomeric materials. In the present paper, the mechanical properties of thermoplastic multicomponent designs have been investigated.

L13 ANSWER 8 OF 16 MEDLINE
 AN 95318567 MEDLINE
 DN 95318567
 TI An experimental study on preserving the intervertebral discs, in dog--prior to ***disc*** allografting.
 AU Wakabayashi K, Matsuzaki H
 CS Department of Orthopaedic Surgery, Nihon University School of Medicine, Tokyo.
 SO NIPPON SEIKEIGAKA GAKKAI ZASSHI. JOURNAL OF THE JAPANESE ORTHOPAEDIC ASSOCIATION. (1995 May) 69 (5) 311-21.
 Journal code: JON. ISSN: 0021-5325.
 CY Japan
 DT Journal; Article. (JOURNAL ARTICLE)
 LA Japanese
 FS Priority Journals
 EM 199510
 AB ***Disc*** grafting is a new surgical procedure that may be suitable for preserving mobility of the spine. This experimental study was designed to determine a method of favorably preserving a ***disc*** prior to allografting. The lumbar vertebrae of adult mongrel dogs were aseptically excised, regarded as the vertebral body. ***disc*** unit, and preserved at -80 degrees C, or at 4 degrees C. In the preservation at 4 degrees C,

UW solution, Euro-Collins solution, BP-II solution, Ham's F-12, or physiological saline solution was used for preservation. Isotopes were used for determining the activities of the ***disc*** cells. In the preservation at -80 degrees C, it was difficult to maintain the activity regardless of the preservation period. There was no difference among these preservative solutions in the preservation at 4 degrees C on the nucleus pulposus, but the 2-day preservation in UW solution provided the best results in terms of the ***annulus*** fibrosis. Based on the results of these experiments, at -80 degrees C it was difficult to maintain the activity of ***disc*** cells while at 4 degrees C the UW solution was the most effective for preserving the annulus fibrosus. However the period of preservation was very short, and a new method to enable longer periods of preservation should be developed.

L13 ANSWER 9 OF 16 MEDLINE
AN 95310310 MEDLINE
DN 95310310

TI A rare complication of mitral valve replacement: sudden cardiac death for immobilization of ***disc*** valve by an unraveled suture.
AU Actis Dato G M, Bogno G, Actis Dato A Jr, Cantarero C, Di Summa M
CS Italian Institution of Cardiac Surgery, Molinette Hospital, Turin, Italy.
SO JOURNAL OF CARDIOVASCULAR SURGERY, (1995 Apr) 36 (2) 167-9.
Journal code: HMF. ISSN: 0021-9509.

CY Italy
DT Journal, Article: (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199509

AB ***Disc*** immobilization caused by an unraveled suture in a mitral valve prosthesis represents a rare extrinsic complication in heart replacement. We report a case of a 54-year-old white male who underwent mitral valve replacement because of a severe mitral regurgitation. A Bjork-Shiley tilting ***disc*** was ***implanted*** with interrupted "U" shaped 3/0 silk sutures. There were no complications and the patient was discharged in the 10th postoperative day. Twenty days after surgery the patient died for acute pulmonary edema. Autopsy revealed

an unraveled suture producing interference with the tilting ***disc*** as a cause of ***disc*** prosthesis immobilization in closed position. The possible explanation of this rare complication is the combination between unraveled suture and the pleating held by Teflon sewing ring after restoring heart function. A faecid heart can produce an overestimation of the ***annulus*** size and the valve ring can bring an anomalous interference with the valve mechanism. In conclusion ***disc*** immobilization by an unraveled suture is a complication that can occur very rarely but an accurate prevention must be warrant particularly with a tilting ***disc*** more than a bileaflet prosthesis.

L13 ANSWER 10 OF 16 MEDLINE
AN 94157712 MEDLINE
DN 94157712

TI Mechanical evaluation of a canine intervertebral ***disc*** spacer: in situ and in vivo studies.
AU Vuono-Hawkins M, Zimmerman M C, Lee C K, Carter F M, Parsons J R, Langrana N A
CS Osteonics Corporation, Allendale, New Jersey.
SO JOURNAL OF ORTHOPAEDIC RESEARCH, (1994 Jan) 12 (1) 119-27.
Journal code: JIQ. ISSN: 0736-0266.

CY United States
DT Journal, Article: (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199406
AB An elastomeric intervertebral ***disc*** spacer with hydroxyapatite ingrowth surfaces was ***implanted*** in a canine model. We studied (a) the mechanical behavior of motion segments at time 0 and at 3, 6, and 12 months and (b) the effect of the interface between the spacer and vertebral bone on ***implant*** stability and bone ingrowth. A polymeric spacer was designed with compressive and torsional properties similar to those of the isolated canine lumbar ***disc***. ***Implantation*** of the spacer in canine cadaver motion segments permitted in situ biomechanical evaluation at time 0. An in vivo study permitted continuous neurological monitoring of animals, with evaluation of mechanical behavior, stability, and ingrowth at 3, 6, and 12 months.

Mechanical testing of cadaver motion segments with the spacer in situ resulted in decreased compressive and torsional stiffnesses, averaging 25 and 42%, respectively. This decrease was due to a combination of the surgical insult to the ***annulus*** and decontamination of adjacent vertebral endplates. In the in vivo study, all 12 animals tolerated the surgery well and none had permanent neurological impairment. The measured parameters indicated that behavior of the spacer-motion segment composite appeared to return to normal within 3-6 months. However, despite use of a porous hydroxyapatite on the ***implant*** surface, there was no significant bone ingrowth. Instead, a layer of dense fibrous connective tissue was formed at the spacer-vertebral bone interface. Early migration of five of the 12 spacers resulted in eccentric loading patterns with consistent reactive osteophyte formation.

L13 ANSWER 11 OF 16 MEDLINE
AN 92173641 MEDLINE
DN 92173641

TI Preservation of all chordae tendineae and papillary muscle during mitral valve replacement with a tilting ***disc*** valve.
AU Feltes H L, Daugherty J B, Perry J E, Bell J H, Heib R E, Johnson G H
CS Cardiovascular Surgery Associates, Las Vegas, NV 89109.
SO JOURNAL OF CARDIAC SURGERY, (1990 Jun) 5 (2) 81-5.
Journal code: BEN. ISSN: 0886-0440.

CY United States
DT Journal, Article: (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199206

AB Mitral valve replacement was performed in 21 patients using a surgical technique that preserves the entire papillary muscle and chordal apparatus. With this technique, the anterior mitral leaflet is split from the center of the free edge toward the ***annulus***. Bilateral incisions are made from the proximal end of this split to the two mitral commissures, detaching the anterior leaflet from the ***annulus***. These two halves of the leaflet, with all chordae intact (corresponding to the anterolateral and posteromedial papillary muscles), are judiciously trimmed to remove areas of leaflet untethered by chordae tendineae and

(when necessary) fibrous thickening, then swung posteriorly and sutured to the posterior mitral ***annulus*** using mattress sutures with pledgets. This surgical technique is expected to favor the preservation of left ventricular function and avoid occurrence of irreversible left ventricular dilation/dysfunction, and has been used successfully for calcific and degenerative etiologies, using both tilting ***disc*** valves and porcine bioprostheses. It is especially useful in the ***implantation*** of tilting ***disc*** and bileaflet mechanical prostheses because anterior subvalvular chordae tissue may interfere with the ***disc*** excursion and relocated to the posterior leaflet ***annulus***.

L13 ANSWER 12 OF 16 MEDLINE
AN 89068253 MEDLINE
DN 89068253
T1 Internal deformations of intact and denuded human lumbar discs subjected to compression, flexion, and extension loads.
AU Serousi R E, Krag M H, Muller D L, Pope M H
CS McClure Musculoskeletal Research Center, Department of Orthopaedics and Rehabilitation, University of Vermont, Burlington 05405.
SO JOURNAL OF ORTHOPAEDIC RESEARCH, (1989) 7 (1) 122-31.

Journal code: JIQ, ISSN: 0736-0266.
CY United States
DT Journal, Article, (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 198903
AB Three rows of six evenly spaced 0.5 mm metal beads were ***implanted*** midsagittally into the discs of ten L4-5 human lumbar motion segments. The intradiscal bead displacements in response to compression, flexion, and extension loads were obtained by digitizing the bead positions from sagittal plane radiographs taken before and during the load application. Each ***disc*** was denuded and the loading process was repeated. For the intact discs, in compression, the intradiscal bead displacements were predominantly anterior. In flexion, the beads in the center of the ***disc*** moved posteriorly whereas the beads closer to the periphery of the ***disc*** moved anteriorly. In extension, the central beads moved anteriorly and the beads closer to the periphery of the ***disc*** moved posteriorly. After denudation, the bead displacements for compression and flexion implied an inward bulging of the inner

wall of the ***annulus***, despite outward bulging of the ***disc*** surface. We hypothesize that the inward bulging causes radial tensile stresses within the ***disc***, leading to disruption of adjacent layers of the ***annulus***.

L13 ANSWER 13 OF 16 MEDLINE
AN 88331019 MEDLINE
DN 88331019
T1 Valve replacement with the tilting ***disc*** Sorin prosthesis in patients with narrow aortic ***annulus***.
AU Calafore A M, Santarelli P, Giloca F, Luciani N, Maddesta N, Paloscia L, Possati F
CS Department of Cardiac Surgery, University of Chieti, Italy.
SO JOURNAL OF CARDIOVASCULAR SURGERY, (1988 Jul-Aug) 29 (4) 387-91.
Journal code: HMF, ISSN: 0021-9509.

CY Italy
DT Journal, Article, (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 198812
AB The Authors summarize their 5-year experience of the clinical use of the Sorin tilting ***disc*** prosthesis in 40 patients (group A) with narrow aortic ***annulus***, compared with a control group (group B: 116 patients) where a larger Sorin prosthesis was ***implanted***. Follow-up lasted from 1 to 60 months, with a mean of 25.6 +/- 12.3 in group A and 20.4 +/- 11.9 in group B. Early and late mortality were low: 1/40 and 2/39 (2.5 and 5.1%) in group A and 4/116 and 9/112 (3.4 and 8.0%) in group B (p = NS); only two deaths, one in each group, were prosthesis-related. Actuarial survival was comparable: 91.2% (CI: 96.3-86.1%) in group A and 78.0% (CI: 87.6-68.4%) in group B, as were probability of being event-free and alive, non-reoperated and with few or no symptoms [group A: 61.7% (CI: 72.4-51.0%) and 77.4% (CI: 85.9-68.9%) respectively; group B: 78.8% (CI: 83.4-74.2%) and 61.1% (CI: 85.9-68.9%) respectively]. The Authors conclude that the Sorin tilting ***disc*** prosthesis is a reliable valve substitute in the narrow aortic ***annulus***; they recommend that enlargement procedures should be confined only to patients with ***annulus*** size less than 19 mm.

L13 ANSWER 14 OF 16 MEDLINE
AN 88113346 MEDLINE
DN 88113346
T1 [Comparative study of mechanical heart valves for ***implantation*** in mitral position].
Vergleichende Untersuchung mechanischer Herzklappen zur ***implantation*** in Mitralposition.

Implantation in Mitralposition.
AU Heiliger R, Lambert H, Gels J, Mittermayer C
CS Rheinisch-Westfälischen Technischen Hochschule, Aachen.
SO HERZ, (1987 Dec) 12 (6) 405-12.
Journal code: F88, ISSN: 0340-9937.
CY GERMANY, WEST: Germany, Federal Republic of
DT Journal, Article, (JOURNAL ARTICLE)
LA German
FS Priority Journals
EM 198805
AB For hydrodynamic comparison of mechanical heart valves, three tilting ***disc*** valves (Bjork-Shiley SD, Bjork-Shiley CCD, Bjork-Shiley Monostur) and two bileaflet valves (St. Jude Medical, Duromedics) with ***annulus*** diameter $d_A = 31$ mm were perfused in a mock circulation in mitral position. Flow, pressure, and orifice area were measured during pulsatile flow. Insufficiency, maximal orifice area, mean orifice area, performance index and efficiency index were calculated. The tilting ***disc*** valves show distinctly lower orifice areas than the bileaflet valves. The mean value of maximal orifice area Annax of the Bjork-Shiley prostheses varies between 227.82 +/- 7.77 mm² and 243.21 +/- 6.21 mm². The mean value of Annax of the Duromedics prosthesis is 295.45 +/- 7.76 mm² and that of the St. Jude Medical prosthesis is 477.43 +/- 11.32 mm². The calculated mean orifice areas A of the bileaflet valves are also higher than those of the tilting ***disc*** valves. The mean values of A are: Bjork-Shiley SD: 183.55 +/- 10.03 mm², Bjork-Shiley CCD: 206.30 +/- 8.62 mm², Bjork-Shiley Monostur: 210.12 +/- 4.74 mm², St. Jude Medical: 398.69 +/- 19.55 mm², Duromedics: 262.90 +/- 6.84 mm². The performance index PI is qualitatively identical with the values of the mean orifice area A because in this study only heart valves of the same size were investigated. For calculation of insufficiency (the entire reflux volume VR including closing volume VS and leakage volume VL was used, thus, insufficiency was also determined in intact prostheses. The values

of
insufficiency of the mechanical valves investigated are higher for
the
bileaflet valves than for the tilting ***disc***
valves (ABSTRACT
TRUNCATED AT 250 WORDS)

L13 ANSWER 15 OF 16 MEDLINE
AN 84061951 MEDLINE
DN 84061951
TI Effects of the ablation of the nucleus pulposus on the vibrational
behavior of the lumbosacral hinge.
AU Quander P, Pelieux L, Lienhard F, Valey B
SO JOURNAL OF BIOMECHANICS. (1983) 16 (10) 777-84
Journal code: JHF. ISSN: 0021-9290.
CY United States
DT Journal, Article. (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 198403
AB This study was designed to investigate the respective damping
properties
of the ***annulus*** fibrous and nucleus pulposus of the
intervertebral ***disc*** during propagation of vibration waves
through the osteoligament-muscular axis of the spine. The study
was
conducted on a 8-10 kg deeply anesthetized baboon. In the first
surgical
phase five accelerometers were ***implanted*** in the first
sacral
vertebra and on the anterior side of the four lower lumbar vertebrae.
The
bioinstrumented animal was placed in a restraining chair and
exposed to
narrow-bandwidth (0-100 Hz) 0.16 G RMS random vibration. Once
data was
recorded, the nuclei pulposi of the studied discs were removed by
suction,
the surrounding annuli remaining intact. The still deeply
anesthetized
animal was again exposed to the same 0-100 Hz, 0.16 G RMS
vibration.
Results were analyzed and their reproducibility was tested on three
animals.

EM 197708
AB Experimental and clinical studies that we published in 1972
indicated that
the ability of man to extend tissue inward from the valve
attachment site
is limited to few millimeters, and that the cardiovascular wall/valve
body
spatial relationships are critically important in prevention of
thrombotic
complications. Since 1972, clinical observations have supported
these
conclusions. Cloth-covered valve prostheses in man have failed to
become
completely covered by tissue. The tilting ***disc*** valve
(Bjork-Shiley) has proved to be an advance over the ball design.
However,
for maximum hydraulic efficiency, the 60 degrees opening of the
prostheses
must be augmented by positioning the valve in harmony with the
tilt of the
annulus into which is ***implanted***. Currently, we
are
studying the functional significance (gradient and turbulence) of
various
positional relationships of the opened ***disc*** to the tilt of
the
anatomic valve. ***annulus***. Changing the orientation of the
Bjork-Shiley mitral prosthesis, for instance, can mean a difference
in
functional opening ranging from 30degrees to 90degrees, and from
45degrees
to 75degrees for the aortic valve.

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'AB' IS NOT A VALID FIELD CODE
L14 46 L13
=> dup rem 114
PROCESSING COMPLETED FOR L14
L15 31 DUP REM L14 (15 DUPLICATES REMOVED)
=> d 1 - bib ab
YOU HAVE REQUESTED DATA FROM 31 ANSWERS -
CONTINUE Y(N)?

L15 ANSWER 1 OF 31 INPADOC COPYRIGHT 2000 EPO
LEVEL 1
AN 133166631 INPADOC ED 20000822 EW 200033 UP
20000822 UW 200033
TI PROSTHETIC NUCLEUS REPLACEMENT FOR SURGICAL

RECONSTRUCTION OF
INTERVERTEBRAL DISCS AND TREATMENT METHOD
IN LAWSON, KEVIN, JON
INS LAWSON KEVIN JON
INA US
PA LAWSON, KEVIN, JON
PAS LAWSON KEVIN JON
PAA US
TL English, French
DT Patent
PIT WOAI PUBL OF THE INT APPL WITH INT SEARCH
REPORT
PI WO 2000042953 A1 20000727
DS RW: AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC
NL PT SE
W: CA JP
AI WO 2000-LU1468 A 20000120
PRAI US 1999-237005 A 19990125
AB A prosthetic nucleus (30) replacement comprises a solid
flattened oval
disk. The top surface (32) of the ***disc*** is domed, and has
a
crest that is about three times higher than the crest on the domed
bottom
surface (34). Both top, and bottom surfaces are therefore convex. A
peg
(36) extends down from the middle of the bottom domed surface
(34), and
is used to pin the ***disc*** to the lower of two vertebrae it
fits
between. Metcal markers are inserted into the peg (36), and an
outside
edge of the ***disc*** (22) so that radiographs can be used to
determine the ***disc***'s in situ position. The prosthetic
nucleus
(30) replacement is surgically ***implanted*** into the
hollowed out
intervertebral space through a flap cut in the natural
annulus
fibrosis. The lower vertebrae (22) is prepared to receive the peg
(36) by
clearing the material covering the top of the bone matrix. Bone
cement is
used around the peg (36) to ensure a tight fit, and immobile
attachment
of the ***disc*** to the lower vertebrae (22).

L15 ANSWER 2 OF 31 INPADOC COPYRIGHT 2000 EPO
LEVEL 1
AN 121479159 INPADOC ED 20000215 EW 200005 UP
20000426 UW 200016
TI TENAPLATE FOR POSITIONING INTERBODY FUSION
DEVICES
IN BOYD, LAWRENCE, M.; RAY, EDDIE, III; MCGAHAN,
THOMAS

INS BOYD LAWRENCE M, RAY EDDIE III, MCGAHAN THOMAS
 INA US: US: US
 PA SDGI HOLDINGS, INC.; BOYD, LAWRENCE, M., RAY, EDDIE, III, MCGAHAN, THOMAS
 PAS SDGI HOLDINGS INC; BOYD LAWRENCE M, RAY EDDIE III; MCGAHAN THOMAS
 PAA US: US: US: US
 TL English, French
 LA English
 DT Patent
 PIT WO/02 PUBL OF THE INT APPL WITHOUT INT SEARCH REP
 P1 WO 200001293 A2 20000113
 DS RW: GH GM KE LS MW SD SL SZ UG ZW AM AZ BY KG KZ MD RU TJ TM AT BE CH CY
 DE DK ES FI FR GB GR IE IT LU MC NL PT SE BF BJ CF CG CI GM GN GW
 ML MR NE SN TD TG
 W: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK ES ES FI GB GD
 GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD
 MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG
 US UZ VN YU ZA ZW
 A1 WO 1999-US15291 A 19990707
 PRAI US 1998-111203 A 19980707
 OSDW 2000-170963
 AB A template assembly (100) is provided for marking locations on the
 disc ***annulus*** for the ***implantation*** of an interbody fusion device or the introduction of a working instrument. The template assembly (100) includes a tubular body (101) sized for percutaneous introduction into a patient and advancement to an affected intervertebral ***disc***. An elongated shaft (110) slidably extends through the tubular body (101) and is threadedly engaged to the handle-mounted thumb wheel (152) so that rotation of the thumb wheel relative to the tubular body (101) retracts the shaft (110) through the body. A guide foot (111) with a rotatable cam (113) near the distal end of the tubular body (101) is operable by the shaft (110) and may be pivoted from a first position aligned with the tubular body (101) to a second deployed position oriented transversely to the tubular body (101). The guide assembly has an electrocautery projection (117) for marking locations on the ***disc*** ***annulus***
 L15 ANSWER 3 OF 31 INPADOC COPYRIGHT 2000 EPO

LEVEL 1
 AN 13439559 INPADOC ED 20000905 EW 200035 UP 20000905 UW 200035
 TI TEMPLATE ASSEMBLY FOR FACILITATING THE PLACEMENT OF INTERBODY FUSION DEVICES
 IN BOYD, LAWRENCE M.; RAY, III, EDDIE, MCGAHAN, THOMAS
 INS BOYD LAWRENCE M, RAY III EDDIE, MCGAHAN THOMAS
 INA US: US: US
 PA SDGI HOLDINGS, INC.
 PAS SDGI HOLDINGS INC
 PAA US
 DT Patent
 PIT USA UNITED STATES PATENT
 P1 US 6096044 A 20000801
 A1 US 1998-111203 A 19980707
 PRAI US 1998-111203 A 19980707
 US 1997-889473 A2 19970708
 US 1995-427432 A3 19950424
 AB A template assembly is provided for marking locations on the ***disc*** ***annulus*** for the ***implantation*** of an interbody fusion device or the introduction of a working instrument. The template assembly includes a tubular body sized for percutaneous introduction into a patient and advancement to an affected intervertebral ***disc***. An elongated shaft slidably extends through the tubular body and is threadedly engaged to the handle-mounted thumb wheel so that rotation of the thumb wheel relative to the tubular body retracts the shaft through the body. A guide foot with a rotatable cam near the distal end of the tubular body is operable by the shaft and may be pivoted from a first position aligned with the tubular body to a second deployed position oriented transversely to the tubular body. The guide assembly has an electrocautery projection for marking locations on the ***disc*** ***annulus***
 L15 ANSWER 4 OF 31 INPADOC COPYRIGHT 2000 EPO

LEVEL 1
 AN 12538871 INPADOC ED 20000405 EW 200013 UP 20000619 UW 200024
 TI METHOD FOR SUBCUTANEOUS SUPRASPINAL PEDICULAR INTERNAL FIXATION
 IN MATTHEWS, HALLETT H
 INS MATTHEWS HALLETT H
 INA US
 PA SDGI HOLDINGS, INC.
 PAS SDGI HOLDINGS INC
 PAA US
 DT Patent
 PIT USA UNITED STATES PATENT
 P1 US 6033406 A 20000307
 A1 US 1998-42910 A 19980317
 PRAI US 1998-42910 A 19980317
 US 1996-677135 A1 19960709
 US 1995-437523 A3 19950509
 US 1993-116351 B1 19930902
 US 1992-938708 B1 19920901
 US 1992-852577 A3 19920317
 OSDW 2000-255673
 AB A method for internal fixation of vertebra of the spine to facilitate graft fusion includes steps for exposing the nucleus of an affected ***disc***, preparing a bone graft, instrumenting the vertebrae for fixation, and introducing the bone graft into the resected nuclear space.
 Disc resection is conducted through two portals through the ***annulus***, with one portal supporting resection instruments and the other supporting a viewing device. The fixation hardware is inserted through small incisions aligned with each pedicle to be instrumented. The hardware includes bone screws, fixation plates, engagement nuts, and linking members. In an important aspect of the method, the fixation plates, engagement nuts and linking members are supported suprafascially but subcutaneously so that the fascia and muscle tissue are not damaged. The bone screw is configured to support the fixation hardware above the fascia. In a further aspect of the invention, a three component dilator system is provided for use during the bone screw ***implantation*** steps of the method.
 L15 ANSWER 5 OF 31 INPADOC COPYRIGHT 2000 EPO

LEVEL 1
 AN 12538871 INPADOC ED 20000405 EW 200013 UP 20000619 UW 200024
 TI METHOD FOR SUBCUTANEOUS SUPRASPINAL PEDICULAR INTERNAL FIXATION
 IN MATTHEWS, HALLETT H
 INS MATTHEWS HALLETT H
 INA US
 PA SDGI HOLDINGS, INC.
 PAS SDGI HOLDINGS INC
 PAA US
 DT Patent
 PIT USA UNITED STATES PATENT
 P1 US 6033406 A 20000307
 A1 US 1998-42910 A 19980317
 PRAI US 1998-42910 A 19980317
 US 1996-677135 A1 19960709
 US 1995-437523 A3 19950509
 US 1993-116351 B1 19930902
 US 1992-938708 B1 19920901
 US 1992-852577 A3 19920317
 OSDW 2000-255673
 AB A method for internal fixation of vertebra of the spine to facilitate graft fusion includes steps for exposing the nucleus of an affected ***disc***, preparing a bone graft, instrumenting the vertebrae for fixation, and introducing the bone graft into the resected nuclear space.
 Disc resection is conducted through two portals through the ***annulus***, with one portal supporting resection instruments and the other supporting a viewing device. The fixation hardware is inserted through small incisions aligned with each pedicle to be instrumented. The hardware includes bone screws, fixation plates, engagement nuts, and linking members. In an important aspect of the method, the fixation plates, engagement nuts and linking members are supported suprafascially but subcutaneously so that the fascia and muscle tissue are not damaged. The bone screw is configured to support the fixation hardware above the fascia. In a further aspect of the invention, a three component dilator system is provided for use during the bone screw ***implantation*** steps of the method.
 L15 ANSWER 5 OF 31 INPADOC COPYRIGHT 2000 EPO

PAA US
 TL English; French
 LA English
 DT Patent
 PIT WOAI PUBL OF THE INT APPL WITH INT SEARCH
 REPORT
 PI WO 9962439 A1 19991209
 DS RW: GH GM KE LS MW SD SL SZ UG ZW AM AZ BY KG
 KZ MD RU TJ TM AT BE CH CY
 DE DK ES FI FR GB GR IE IT LU MC NL PT SE BF BJ CF
 CG CI CM GA GN GW
 ML MR NE SN TD TG
 W: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CU
 CZ DE DK EE ES FI GB GD
 GE GH GM HU ID IL IS JP KE KG KP KR KZ LC LK LR LS
 LT LU LV MD MG MK
 MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ
 TM TR TT UA UG UZ VN
 YU ZA ZW
 AI WO 1999-US12478 A 19990604
 PRAI US 1998-90820 A 19980604
 OSDW 2000-086837
 AB This invention is a prosthetic spinal ***disc*** nucleus (20)
 for
 implantation into a nucleus cavity of a spinal
 disc
 The nucleus cavity is defined by an opposing pair of vertebral
 bodies,
 and an ***annulus***. The prosthetic spinal ***disc***
 nucleus
 has a formed hydrogel core (22) configured to expand from a
 dehydrated
 state to a hydrated state. The hydrogel core is wedge shaped in at
 least
 the hydrated state. The constraining jacket (24) surrounding the
 hydrogel
 core is flexible, but substantially inelastic, and has a generally
 fixed
 maximum volume less than a volume of a nucleus cavity such that
 the
 constraining jacket is configured to prevent the hydrogel core from
 conforming to an ***annulus*** upon hydration.
 L15 ANSWER 6 OF 31 INPADOC COPYRIGHT 2000 EPO
 LEVEL 1
 AN 111763543 INPADOC ED 19990818 EW 199932 UP
 19991021 UW 199941
 TI INTERVERTEBRAL PROSTHESIS
 IN HUSSON JEAN-LOUIS, BAUMGARTNER WALTER,
 FREUDIGER STEFAN
 INS HUSSON JEAN-LOUIS, BAUMGARTNER WALTER,
 FREUDIGER STEFAN
 INA FR: CH: CH
 PA SULZER ORTHOPAEDIE AG
 PAS SULZER ORTHOPAEDIE AG
 PAA CH

DT Patent
 PIT USA UNITED STATES PATENT
 PI US 5919235 A 19990706
 AI US 1996-723146 A 19960930
 PRAI US 1996-723146 A 19960930
 EP 1995-810701 A 19951108
 AB An ***implant***, in particular an intervertebral prosthesis,
 which
 consists of an elongated elastic body which is form-elastic and
 takes on
 the form of a spiral S in the force-free state. The spiral can be
 drawn
 by a reverse winding up into an insertion instrument which is only
 insubstantially larger in the insertion region than the cross-section
 of
 the elongated elastic body in order to reach the inner space of an
 intervertebral ***disc*** through a small opening in the
 annulus fibrous and to push in and sever off the
 self-winding
 spiral when the interior is filled. This has the advantage that inner
 spaces of differing sizes can be filled with the same spiral.
 L15 ANSWER 7 OF 31 MEDLINE DUPLICATE
 I
 AN 1999304385 MEDLINE
 DN 99304385
 TI ***Disc*** extrusion in a Rottweiler dog with caudal cervical
 spondylomyelopathy after failure of intervertebral
 distraction/stabilisation.
 AU Marchevsky A M, Richardson J L
 CS Division of Veterinary and Biomedical Sciences, Murdoch
 University,
 Western Australia.
 SO AUSTRALIAN VETERINARY JOURNAL, (1999 May) 77 (5)
 295-7.
 Journal code: 91E ISSN: 0005-0423.
 CY Australia
 DT Journal; Article, (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 199909
 EW 19990903
 AB A Rottweiler dog was presented with an 8 week history of
 hindlimb ataxia
 Neurological examination localised the lesion to the cervical spinal
 cord
 Myelography demonstrated dynamic compressive lesions at C5-6
 and C6-7
 consistent with a diagnosis of caudal cervical spondylomyelopathy.
 Distraction/stabilisation of both discs was performed using
 interbody
 polymethyl methacrylate. Both ***implants*** subsequently
 failed
 leading to extrusion of the remaining dorsal ***annulus***
 fibrosis of
 the C5-6 intervertebral ***disc*** and nonambulatory
 tetraparesis. A

ventral slot combined with distraction/stabilisation using screws
 and
 polymethyl methacrylate was performed and resulted in nearly full
 neurological recovery.
 L15 ANSWER 8 OF 31 MEDLINE DUPLICATE
 2
 AN 2000332785 MEDLINE
 DN 200332785
 TI Mitral valve replacement in the presence of massive posterior
 annular
 calcification.
 AU Lin P Y, Kan C D, Luo C Y, Yang Y J
 CS Department of Cardiovascular Surgery, Chyay Christian Hospital,
 Taiwan.
 R.O.C.
 SO JOURNAL OF CARDIAC SURGERY, (1999 Jul-Aug) 14 (4)
 266-9.
 Journal code: BEN ISSN: 0886-0440.
 CY United States
 DT Journal; Article, (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 200009
 EW 20000904
 AB Replacement of the mitral valve in the presence of extensive
 calcification
 of the posterior ***annulus*** is a technical challenge. The
 heavily
 calcified ***annulus*** often results in difficulties of seating
 the
 prosthesis and later periprosthetic leakage. A radical calcium
 debridement
 may leave a friable and thin ***annulus*** that contributes to
 the
 risks of prosthesis dehiscence and ventricular perforation. To avoid
 technical difficulties and associated catastrophic complications, we
 devised a new technique of mitral valve replacement that allows a
 surgeon
 to ***implant*** a prosthesis securely. This technique involves
 inserting a larger single tilting ***disc*** mechanical valve
 (Medtronic Hall ***disc***) with intra-atrial anchorage over the
 posterior sector of the calcified ***annulus***, orienting the
 working
 (major) orifice of the mechanical valve anteriorly, and thereby
 tilting
 the lesser occluder segment of the ***disc*** upward into the
 atrium
 and away from the calcification in diastole. By utilizing this
 method, we
 have successfully performed mitral valve replacement in two
 patients who
 exhibited massive calcification of the posterior mitral
 annulus.
 Postoperative transthoracic echocardiography showed excellent
 hemodynamic performance of the ***implanted*** valves. We
 therefore

recommend this simple, safe, and time-saving procedure as a feasible method to deal with this surgical dilemma.

L15 ANSWER 9 OF 31 INPADOC COPYRIGHT 2000 EPO

LEVEL 1

AN 47679511 INPADOC EW 199833 UP 20000822 UW 200033
TI TEMPLATE FOR POSITIONING INTERBODY FUSION DEVICES

IN BOYD, LAWRENCE M.; RAY, III, EDDIE
INS BOYD, LAWRENCE M.; RAY III, EDDIE
INA US: US

PA SDGI HOLDINGS, INC.
PAS SDGI HOLDINGS INC

PAA US

DT Patent

PTT USA, UNITED STATES PATENT

PI US 5785707 A 19980728

AI US 1997-889473 A 19970708

PRAI US 1997-889473 A 19970708

US 1995-427432 A3 19950424

AB A template assembly is provided for marking locations on the

disc

annulus for the ***implantation*** of an interbody fusion device or the introduction of a working instrument. The template assembly

includes a tubular body sized for percutaneous introduction into a patient and advancement to an affected intervertebral ***disc***.

An

elongated shaft slidably extends through the tubular body and is threadably engaged to the tubular body at its proximal end so that rotation of the shaft relative to the tubular body advances the shaft through the body. A guide foot is pivotably connected to the distal end of the tubular body to be pivoted from a first position aligned with the

tubular body to a second deployed position oriented substantially perpendicular to the tubular body. The guide body is pivoted from the first position to the second position by advancement of the elongated shaft through the tubular body. The guide body in one embodiment defines

a bore through which the working tip of an electrocautery instrument extends to mark the ***disc***. ***annulus***. In another embodiment, the guide body itself defines an electrocautery projection.

The template assembly can be anchored to the affected ***disc*** by a guide wire extending through the tubular body and about which the template assembly can be rotated to make an additional mark on the

annulus at a predetermined distance from the first mark.

L15 ANSWER 10 OF 31 INPADOC COPYRIGHT 2000 EPO

LEVEL 1

AN 46441591 INPADOC EW 199815 UP 19991103 UW 199943
TI METHOD FOR SUBCUTANEOUS SUPRASPINAL INTERNAL FIXATION

IN MATTHEWS, HALLETT H.
INS MATTHEWS, HALLETT H.
INA US

PA SDGI HOLDING, INC.
PAS SDGI HOLDING INC

PAA US

DT Patent

PTT USA, UNITED STATES PATENT

PI US 5728097 A 19980317

AI US 1996-677135 A 19960709

PRAI US 1996-677135 A 19960709

US 1995-437523 A3 19950509

US 1993-116351 B1 19930902

US 1992-938708 B1 19920901

US 1992-852577 A3 19920317

AB A method for internal fixation of vertebra of the spine to facilitate

graft fusion includes steps for excising the nucleus of an affected ***disc***, preparing a bone graft, instrumenting the vertebrae for

fixation, and introducing the bone graft into the resected nuclear space.

Disc resection is conducted through two portals through the

annulus, with one portal supporting resection instruments and the other supporting a viewing device. The fixation hardware is inserted

through small incisions aligned with each pedicle to be instrumented. The hardware includes bone screws, fixation plates, engagement nuts, and

linking members. In an important aspect of the method, the fixation plates, engagement nuts and linking members are supported supraspinally

but subcutaneously so that the fascia and muscle tissue are not damaged.

The bone screw is configured to support the fixation hardware above the fascia. In a further aspect of the invention, a three component dilator

system is provided for use during the bone screw ***implantation*** steps of the method

L15 ANSWER 11 OF 31 MEDLINE DUPLICATE

AN 1998291890 MEDLINE

DN 98291890

TI Intervertebral ***disc*** distraction with a laparoscopic

anterior

spinal fusion system.

AU Nibu K; Panjabi M M; Oxland T; Cholewicki J

CS Department of Orthopaedics, Yamanashi University School of Medicine, Japan.

NC RO1-AR39209 (NIAMS)

SO EUROPEAN SPINE JOURNAL. (1998) 7 (2) 142-7.

Journal code: B9Y. ISSN: 0940-6719.

CY GERMANY: Germany, Federal Republic of

DT Journal: Article. (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199810

AB The BAK spinal fusion system has been applied to laparoscopic anterior

lumbar interbody fusion. The system, consisting of a pair of cylindrical

implants with threads, placed symmetrically about the sagittal

plane, functions by tensioning the ***annulus*** fibrosis. Cylindrical

plugs of increasing size are inserted prior to the ***implant*** placement. As the procedure may affect spinal posture and

height, we measured changes due to incremental plug insertion using human

cadaveric spine specimens (L5-S1, n = 4). Multi-directional flexibility of

the construct was also measured as a function of plug size. The ***disc*** height change was found to increase initially and

then to level off at 13-mm diameter plugs. In the sagittal plane, the intervertebral posture first shifted towards kyphotic then came back

to the initial lordotic posture with plugs of bigger size. However, changes

in ***disc*** height and spine posture were not statistically significant. Comparing the neutral zone (NZ) flexibility after

inserting the plugs to the intact values, neither the flexion/extension nor the axial rotation NZ showed any significant change. In lateral bending,

the NZ decreased after the insertion of 13-mm plugs (p < 0.05).

Insertion of plugs of increasing size from 9 mm to 12 mm decreased the range of motion

(ROM) in all directions (p < 0.05). Insertion of 13-mm and 14-mm plugs decreased the flexion/extension and lateral bending ROM, but not

the axial rotation ROM, probably indicating some injury to the ***annulus***

fibers.

L15 ANSWER 12 OF 31 INPADOC COPYRIGHT 2000 EPO

LEVEL 1
 AN 36794151 INPADOC UP 20000822 UW 200033
 T1 TEMPLATE FOR POSITIONING INTERBODY FUSION DEVICES
 IN BOYD, LAWRENCE M.; RAY, III, EDDIE
 INS BOYD, LAWRENCE M.; RAY III EDDIE
 INA US: US
 PA DANEK MEDICAL, INC.
 PAS DANEK MEDICAL, INC.
 PAA US
 DT Patent
 PIT USA UNITED STATES PATENT
 PI US 5645549 A 19970708
 AI US 1995-427432 A 19950424
 PRAI US 1995-427432 A 19950424
 AB A template assembly is provided for marking locations on the
 disc
 annulus for the ***implantation*** of an interbody fusion device or the introduction of a working instrument. The template assembly includes a tubular body sized for percutaneous introduction into a patient and advancement to an affected intervertebral ***disc***
 An elongated shaft slidably extends through the tubular body and is threadably engaged to the tubular body at its proximal end so that rotation of the shaft relative to the tubular body advances the shaft through the body. A guide foot is pivotally connected to the distal end of the tubular body to be pivoted from a first position aligned with the tubular body to a second deployed position oriented substantially perpendicular to the tubular body. The guide body is pivoted from the first position to the second position by advancement of the elongated shaft through the tubular body. The guide body in one embodiment defines a bore through which the working tip of an electrocautery instrument extends to mark the ***disc*** ***annulus***. In another embodiment, the guide body itself defines an electrocautery projection. The template assembly can be anchored to the affected ***disc*** by a guide wire extending through the tubular body and about which the template assembly can be rotated to make an additional mark on the ***annulus*** at a predetermined distance from the first mark.

L15 ANSWER 13 OF 31 MEDLINE
 AN 97273538 MEDLINE
 DN 97273538
 T1 Retrolental fibrocartilaginous mass. Report of a case.
 AU Chen T Y, Lui T N
 CS Department of Neurosurgery, Chang Gung Medical College, Taoyuan, Taiwan.

SO SPINE. (1997 Apr 15) 22 (8):920-3.
 Journal code: UXX. ISSN: 0362-2436.
 CY United States
 DT Journal, Article; (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 199709
 EW 19970901
 AB STUDY DESIGN: This is a report of a 63-year-old woman with a retrolental fibrocartilaginous mass and myelopathy. OBJECTIVE: To describe the pathophysiology of the retrolental fibrocartilaginous mass formation and its association with the C2-C3 ***disc***. SUMMARY OF BACKGROUND DATA: High cervical ***disc*** protrusion is an uncommon condition and presents even more rarely as a craniovertebral junction mass with spinal cord compression. Uncertainty remains regarding the etiology of its formation in the retrolental region. METHODS: The patient underwent surgical intervention with transoral decompression and posterior C1-C2 skeletal fusion with bony graft. RESULTS: On the basis of dynamic plain radiographs, magnetic resonance imaging, and surgical pathology, the origin of the mass may have been the C2-C3 ***disc***. CONCLUSIONS: We hypothesized that the mechanism underlying the posterior odontoid fibrocartilaginous mass with spinal cord involvement most likely originate upward migration of the C2-C3 ***annulus*** fragment to the atlantoaxial joint as a result of aging. Secondary fibrocartilaginous metaplasia plays a major role in creating such ***disc***-like material. To prevent unrecoverable myelopathy, early detection and anterior decompression with posterior C1-C2 skeletal fixation and bony fusion are the best treatment methods.

L15 ANSWER 14 OF 31 MEDLINE
 DUPLICATE
 4
 AN 97379586 MEDLINE
 DN 97379586
 T1 Preservation of anterior and posterior leaflet in mitral valve replacement with a tilting ***disc*** valve [see comments].
 CM Comment in: Ann Thorac Surg 1998 Jun;65(6):1840-1
 Comment in: Ann Thorac Surg 1999 Jan;67(1):293-4
 AU Choh J H
 CS Department of Surgery, Sherman Hospital, Elgin, Illinois, USA.
 SO ANNALS OF THORACIC SURGERY. (1997 Jul) 64 (1):271-3.
 Journal code: 683. ISSN: 0003-4975.
 CY United States
 DT Journal, Article; (JOURNAL ARTICLE)

LA English
 FS Abstracted Index Medicus Journals; Priority Journals
 EM 199710
 AB An operative technique for mitral valve replacement with preservation of chordae tendineae to both the anterior and posterior leaflets is described. The anterior mitral valve leaflet is completely detached from the ***annulus*** and divided into three to four islands of tissue, each with attached chordae tendineae. These islands are transposed under the posterior leaflet and secured with 4-0 polypropylene sutures. The posterior leaflet is completely preserved with no division or manipulation. This technique allows safe ***implantation*** of tilting ***disc*** or bileaflet prostheses with excellent preservation of left ventricular function.

L15 ANSWER 15 OF 31 MEDLINE
 AN 97283038 MEDLINE
 DN 97283038
 T1 Intervertebral ***disc*** autografting in a bipedal animal model.
 AU Luk K D, Ruan D K, Chow D H, Leong J C
 CS Department of Orthopaedic Surgery, University of Hong Kong, China.
 SO CLINICAL ORTHOPAEDICS AND RELATED RESEARCH. (1997 Apr) (337):13-26.
 Journal code: DFX. ISSN: 0009-921X.
 CY United States
 DT Journal, Article; (JOURNAL ARTICLE)
 LA English
 FS Abstracted Index Medicus Journals; Priority Journals
 EM 199708
 EW 19970801
 AB Fusion of the spine while restoring stability of the spinal segment, fails to preserve spinal mobility. Long term complications of accelerated degeneration in the neighboring segments have been reported. The present study explores the possibility of intervertebral ***disc*** autografting in a bipedal animal model by isolating a lumbar ***disc*** together with the adjacent end plates and repositioning it with minimal internal fixation. Fourteen Rhesus monkeys were sacrificed at 2, 4, 6, and 12 months after surgery and the grafted discs were examined radiologically, biochemically, pathologically, and biomechanically. Healing of the bony end plate was seen between 2 to 4 months postoperatively. There was early loss of ***disc*** height at 2 and 4 months but there was a suggestion of some reconstitution up to 12 months. There was minimal evidence of gross degeneration at all stages.

Gradual loss of water content was found in the ***annulus*** and the nucleus.

The nucleus pulposus seemed to be able to reaccumulate proteoglycan after an initial drop in the first 4 months. There was significant increase in hydroxyproline content in the ***annulus*** fibrosis and the nucleus pulposus.

Biomechanically, the grafted ***disc*** showed hypermobility in the first 4 months but gradually became stabilized with time. Results from this study suggested that a fresh intervertebral autograft could survive a period of ischemia. Although the physiology of the ***disc*** was deranged, it was able to preserve a certain degree of segmental mobility without sacrificing stability. Further studies are required to validate these results and the field of ***disc*** allografting should be explored.

L15 ANSWER 16 OF 31 INPADOC COPYRIGHT 2000 EPO

LEVEL 2

AN 40743591 INPADOC UP 20000828 UW 200034

TI PROSTHETIC ***IMPLANT*** FOR INTERVERTEBRAL SPINAL FUSION

IN BRANTIGAN, JOHN, W.

INS BRANTIGAN, JOHN W

INA US

PA BRANTIGAN, JOHN, W.

PAS BRANTIGAN, JOHN W

PAA US

TL English

LA English

DT Patent

PIT WO/93 SUBSEQUENT PUBL. OF THE INT. SEARCH REPORT

PI WO 9308964 A3 19950420

DS RW: AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT SE

W: AU CA JP

AI WO 1994/US9649 A 19940907

PRAI US 1993-123191 A 19930920

AB Block or plug ***implants*** provide weight-bearing support for adjacent vertebrae in a vertebral column while allowing sufficient area between and beside the plugs for packing of autologous bone graft to allow bony healing and fusion. The plugs have a laterally directed slot to allow ingrowth or blood supply from the side and to allow locking the permanent device in place with living bone. The plugs have a

patterned surface to grip the vertebrae. Plugs used for fusion in the L4-5 and L5-S1 levels are wedge-shaped to reproduce the normal shape of these discs, which are higher anteriorly than posteriorly. The height of the plugs is greater than the width. The ***implants*** are made of a biocompatible carbon fiber reinforced polymer of alternately made of traditional orthopaedic ***implant*** materials such as chrome cobalt, stainless steel or titanium. In the surgical procedure, undamaged ***annulus*** fibrous ***disc*** tissue connecting the adjacent vertebrae is preserved and a pair of side-by-side ***implant*** plugs are forced into side-by-side transverse channels in the adjoining vertebrae to stretch the remaining ***annulus*** and support body weight applied through the vertebrae. The plugs are bottomed in the channels on cortex bone and bone ingrowth and fusion is facilitated by packing a patient's own graft into the center of the plug and beside and between the two adjacent plugs.

L15 ANSWER 17 OF 31 MEDLINE

AN 95318567 MEDLINE

DN 95318567

TI An experimental study on preserving the intervertebral discs, in dog--prior to ***disc*** allografting

AU Wakabayashi K, Matsuzaki H

CS Department of Orthopaedic Surgery, Nihon University School of Medicine, Tokyo.

SO NIPPON SEIKEIGAKA GAKKAI ZASSHI, JOURNAL OF THE JAPANESE ORTHOPAEDIC ASSOCIATION, (1995 May) 69 (5) 311-21.

Journal code: JON, ISSN: 0021-5325.

CY Japan

DT Journal, Article, (JOURNAL ARTICLE)

LA Japanese

FS Priority Journals

EM 199510

AB ***Disc*** grafting is a new surgical procedure that may be suitable for preserving mobility of the spine. This experimental study was designed to determine a method of favorably preserving a ***disc*** prior to allografting. The lumbar vertebrae of adult mongrel dogs were excised, regarded as the vertebral body- ***disc*** unit, and preserved at -80 degrees C, or at 4 degrees C. In the preservation at 4 degrees

C.

UV solution, Euro-Collins solution, EP-II solution, Harris F-12, or physiological saline solution was used for preservation. Isotopes were used for determining the activities of the ***disc*** cells. In the preservation at -80 degrees C, it was difficult to maintain the activity regardless of the preservation period. There was no difference among these preservative solutions in the preservation at 4 degrees C on the nucleus pulposus, but the 2-day preservation in UV solution provided the best results in terms of the ***annulus*** fibrosis. Based on the results of these experiments, at -80 degrees C it was difficult to maintain the activity of ***disc*** cells while at 4 degrees C the UV solution was the most effective for preserving the annulus fibrosis. However the period of preservation was very short, and a new method to enable longer periods of preservation should be developed.

L15 ANSWER 18 OF 31 MEDLINE

AN 95310310 MEDLINE

DN 95310310

TI A rare complication of mitral valve replacement: sudden cardiac death for immobilization of ***disc*** valve by an unraveled suture.

AU Actis Dato G M, Boggiolo G, Actis Dato A Jr, Cattaneo C, Di Summa M

CS Italian Institution of Cardiac Surgery, Molinette Hospital, Turin, Italy.

SO JOURNAL OF CARDIOVASCULAR SURGERY, (1995 Apr) 36 (2) 167-9.

Journal code: HNAF, ISSN: 0021-9509.

CY Italy

DT Journal, Article, (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199509

AB ***Disc*** immobilization caused by an unraveled suture in a mitral valve prosthesis represents a rare extrinsic complication in heart valve replacement. We report a case of a 54-year-old white male who underwent mitral valve replacement because of a severe mitral regurgitation. A Bjork-Shiley tilting ***disc*** was ***implanted*** with interrupted "U" shaped 3/0 silk sutures. There were no complications and the patient was discharged in the 10th postoperative day. Twenty

after surgery the patient died for acute pulmonary edema. Autopsy revealed an unraveled suture producing interference with the tilting ***disc*** as a cause of ***disc*** prosthesis immobilization in closed position.

The possible explanation of this rare complication is the combination between unraveled suture and the pleating held by Teflon sewing ring after restoring heart function. A flaccid heart can produce an overestimation of the ***annulus*** size and the valve ring can bring an anomalous interference with the valve mechanism. In conclusion ***disc***

immobilization by an unraveled suture is a complication that can occur very rarely but an accurate prevention must be warrant particularly with a tilting ***disc*** more than a belated prosthesis.

L15 ANSWER 19 OF 31 MEDLINE

AN 95367733 MEDLINE
DN 95367733

TI Materials and design concepts for an intervertebral ***disc*** spacer.

II. Multidiameter composite design.
AU Vuono-Hawkins M; Langrana N A; Parsons J R; Lee C K; Zimmerman M C
CS University of Medicine and Dentistry of New Jersey, New Jersey Medical School, Section of Orthopaedic Surgery, Newark 07103, USA.
SO JOURNAL OF APPLIED BIOMATERIALS, (1995 Summer) 6 (2) 117-23

Journal code: BCT, ISSN: 1045-4861.

CY United States
DT Journal, Article; (JOURNAL ARTICLE)

LA English
FS Priority Journals
EM 199511

AB The main function of the intervertebral ***disc*** is to transmit and attenuate compressive and torsional forces, and stabilize the intervertebral joint. Unfortunately, the ***disc*** may be displaced or damaged due to trauma or disease causing the nucleus to herniate and protrude into the vertebral canal or intervertebral foramen. Pressure on the spinal nerve may cause pain or paralysis in the area of its distribution. At present, the surgical procedures used to alleviate this condition include ***disc*** excision, and/or spinal fusion. A more desirable situation would involve removing the nucleus pulposus and part

or all of the ***annulus*** fibrosis and ***implanting*** a suitable biofunctional equivalent. Such a prosthesis should attenuate stresses and prevent abnormal stress at adjacent intervertebral joints.

Maintenance of normal ***disc*** height would prevent impingement of the posterior facet joints and facet joint syndrome. In a previous companion paper (J. Applied Biomater. 5:125-132, 1994), the mechanical behavior of ***disc*** prostheses manufactured from fiber reinforced, elastomeric thermoset resins were examined. In order to develop devices

which were more practical from a manufacturing standpoint and extremely reproducible, the fiber reinforced thermoset resins were replaced by multi-diameter thermoplastic elastomeric materials. In the present paper, the mechanical properties of thermoplastic multicomponent designs have been investigated

L15 ANSWER 20 OF 31 MEDLINE

AN 94157712 MEDLINE
DN 94157712

TI Mechanical evaluation of a canine intervertebral ***disc*** spacer: in

situ and in vivo studies.
AU Vuono-Hawkins M; Zimmerman M C; Lee C K; Carter F M; Parsons J R; Langrana N A

CS Osteonics Corporation, Allendale, New Jersey.
SO JOURNAL OF ORTHOPAEDIC RESEARCH, (1994 Jan) 12 (1) 119-27.

Journal code: JIQ, ISSN: 0736-0266.

CY United States
DT Journal, Article; (JOURNAL ARTICLE)

LA English
FS Priority Journals
EM 199406

AB An elastomeric intervertebral ***disc*** spacer with hydroxyapatite ingrowth surfaces was ***implanted*** in a canine model. We studied (a) the mechanical behavior of motion segments at time 0 and at 3, 6, and 12 months and (b) the effect of the interface between the spacer and vertebral bone on ***implant*** stability and bone ingrowth. A polymer spacer was designed with compressive and torsional properties similar to those of the isolated canine lumbar ***disc***. ***Implantation*** of the spacer in canine cadaver motion segments permitted in situ biomechanical evaluation at time 0. An in vivo

permitted continuous neurological monitoring of animals, with evaluation of mechanical behavior, stability, and ingrowth at 3, 6, and 12 months.

Mechanical testing of cadaver motion segments with the spacer in situ resulted in decreased compressive and torsional stiffnesses, averaging 25

and 42%, respectively. This decrease was due to a combination of the surgical insult to the ***annulus*** and decortication of adjacent vertebral endplates. In the in vivo study, all 12 animals tolerated the surgery well and none had permanent neurological impairment. The measured parameters indicated that behavior of the spacer-motion segment composite appeared to return to normal within 3-6 months. However, despite use of a porous hydroxyapatite on the ***implant*** surface, there was no

significant bone ingrowth. Instead, a layer of dense fibrous connective tissue was formed at the spacer-vertebral bone interface. Early migration of five of the 12 spacers resulted in eccentric loading patterns with consistent reactive osteophyte formation.

L15 ANSWER 21 OF 31 BIOSIS COPRYRIGHT 2000 BIOSIS
AN 1993:384597 BIOSIS
DN PREV199396059897

TI Repair of intervertebral discs of rabbits evaluated histologically for results with trial of temporary "ectopic" placement in the same rabbits.

AU Funakoshi, Koichi
CS Dep. Orthopaedic Surg., Osaka City Univ. Med. Sch., Osaka Japan
SO Journal of the Osaka City Medical Center, (1992) Vol. 41, No. 2 PART 2.

pp. 569-582.
ISSN: 0386-4103.

DT Article
LA Japanese
SL Japanese
AB ***Disc*** herniation is main cause of lumbago, but few reports

describe the repair of intervertebral discs. I studied the repair of intervertebral discs and whether the surroundings of the ***disc*** during repair affected results. Sixty-five rabbits weighing about 3 kg were anesthetized with intravenous injections of pentobarbital sodium. A midabdominal incision and transabdominal approach to the ventral side of about five lumbar vertebral bodies were made. One of two surgical

- procedures was followed. In one, a wedge-shaped part of the ***annulus*** was removed from the ventral part of three or four discs.
- The ***annulus*** was cut transversally into two pieces, which were connected with sutures or fibrin glue. The attached annuli were placed for some time in subcutaneous tissue, abdominal cavity, extraperitoneal space, or a filter-walled chamber placed in the abdominal cavity. In the second, an ***annulus*** was ***transplanted*** into another intervertebral ***disc***. A transverse incision was made into the ventral part of a lumbar intervertebral ***disc*** and the nucleus was removed. Some discs were left after the ***transplantation*** without further treatment, and other discs were fixed with a staple, thread, or wire to prevent shifting. Histological examinations were done in both groups on days 4 to 528 after surgery. After the first procedure, most sutured or glued parts of annuli had joined to each other by two weeks.
- after surgery except in the group with a chamber in the abdomen, in which there was partial or no repair. Annuli grafted in the second procedure into lumbar discs were held on by an outer bridge of cartilage cells originating from the epiphysis, but adjoining surfaces of the grafted wedge and the recipient ***disc*** had not grown together at all. At the same time, cells from the central part of the ***disc*** had moved into the spaces between the grafted wedge and the recipient ***disc***.
- ***disc*** preventing connection of the surfaces. In half of the discs incised and fixed, the adjoining surfaces were repaired. The results showed that discs have an intrinsic ability to repair themselves, and that extrinsic factors such as connective tissue are needed for repair. An incised intervertebral ***disc*** can be repaired if that part of the spine is fixed and the discs are in close apposition.
- L15 ANSWER 22 OF 31 MEDLINE DUPLICATE
AN 92173641 MEDLINE
DN 92173641
TI Preservation of all chordae tendineae and papillary muscle during mitral valve replacement with a tilting ***disc*** valve.
- AU Feikes H.L., Daugherty J.B., Perry J.E., Bell J.H., Hieb R.E., Johnson G.H.
CS Cardiovascular Surgery Associates, Las Vegas, NV 89109.
SO JOURNAL OF CARDIAC SURGERY, (1990 Jun) 5 (2) 81-5.
Journal code: BEN. ISSN: 0886-0440.
CY United States
DT Journal: Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199206
AB Mitral valve replacement was performed in 21 patients using a surgical technique that preserves the entire papillary muscle and chordal apparatus. With this technique, the anterior mitral leaflet is split from the center of the free edge toward the ***annulus***. Bilateral incisions are made from the proximal end of this split to the two mitral commissures, detaching the anterior leaflet from the ***annulus***.
- These two halves of the leaflet, with all chordae intact (corresponding to the anterolateral and posteromedial papillary muscles), are judiciously trimmed to remove areas of leaflet unlatched by chordae tendineae and (when necessary) fibrous thickening, then swung posteriorly and sutured to the posterior mitral ***annulus*** using mattress sutures with pledgets. This surgical technique is expected to favor the preservation of left ventricular function and avoid occurrence of irreversible left ventricular dilation/dysfunction, and has been used successfully for calcific and degenerative etiologies, using both tilting ***disc*** valves and porcine bioprostheses. It is especially useful in the ***implantation*** of tilting ***disc*** and bileaflet mechanical prostheses because anterior subvalvular chordae tissue may interfere with the ***disc*** excursion and relocated to the posterior leaflet ***annulus***.
- L15 ANSWER 23 OF 31 EMBASE COPYRIGHT 2000
ELSEVIER SCI. B.V.
AN 89028704 EMBASE
DN 1989028704
TI Doppler color flow evaluation of prosthetic mitral valves: Experimental epicardial studies
AU Jones M., Eido E.E.
CS Surgery Branch, National Heart, Lung, and Blood Institute, National Institutes of Health, Bethesda, MD 20892, United States
SO Journal of the American College of Cardiology, (1989) 13/1 (234-240).
ISSN: 0735-1097 CODEN: JACCDD
CY United States
- DT Journal
FS 018 Cardiovascular Diseases and Cardiovascular Surgery
LA English
SL English
AB More than 300 epicardial Doppler color flow mapping studies on 23 different types of clinical and preclinical valves were performed after ***implantation*** in the mitral position in sheep. The transducers were placed directly on the heart to obtain the greatest possible resolution. Studies were performed in each animal under different hemodynamic conditions by varying heart rate and cardiac output. Eighty-six valves were studied late (20 to 52 weeks), whereas the remainder were studied early (0 to 10 days) after operation. The valves included 3 types of ball and cage valves, 3 types of ***disc*** and cage valves, 7 types of tilting ***disc*** valves, 1 type of bileaflet hemidis mechanical valve, 13 types of porcine aortic valves and 5 types of bovine pericardial valves. The results of these studies were compared with those obtained in 40 studies of 20 native mitral valves. Doppler color velocity/flow profiles were imaged in real time with simultaneous electrocardiographic gating; the aortic flow was also displayed for the timing of velocity/flow events. Native normal mitral valves had no in-orifice flow disturbances and laminar low velocity/flow directed toward the left ventricular apex. Ball and cage and ***disc*** and cage valves had high velocity peripheral jets and vortices of velocity/flow reversals distal to the occluders. Tilting ***disc*** valves had differing velocity/flow patterns determined by their orientation in the mitral ***annulus***.
- Bileaflet hemidis valves had three jets, which decayed 1.5 cm downstream. Porcine aortic and bovine pericardial bioprosthetic valves had high velocity, turbulent, nonaxisymmetric jets (more severe for the latter). These observations are similar and complementary to those obtained by in vitro flow visualization techniques and those obtained by laser Doppler anemometry. As such, they provide an important interface between the in vitro assessment of prosthetic valve function and the clinical utility of Doppler color velocity flow imaging technology.

L15 ANSWER 24 OF 31 MEDLINE DUPLICATE

AN 89068253 MEDLINE

DN 89068253

TI Internal deformations of intact and denudect human lumbar discs

subjected to compression, flexion, and extension loads.

AU Scrota R E; Krag M H; Muller D L; Pope M H

CS MacClure Musculoskeletal Research Center, Department of

Orthopedics and

Rehabilitation, University of Vermont, Burlington 05405.

SO JOURNAL OF ORTHOPAEDIC RESEARCH, (1989) 7 (1) 122-31.

Journal code: JIQ ISSN: 0736-0266.

CY United States

DT Journal Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 198903

AB Three rows of six evenly spaced 0.5 mm metal beads were

implanted

mid-sagittally into the discs of ten L4-5 human lumbar motion

segments. The

intradiscal bead displacements in response to compression, flexion,

and

extension loads were obtained by digitizing the bead positions from

sagittal plane radiographs taken before and during the load

application.

Each ***disc*** was denudected and the loading process was

repeated.

For the intact discs, in compression, the intradiscal bead

displacements

were predominantly anterior. In flexion, the beads in the center of

the

disc moved posteriorly whereas the beads closer to the

periphery

of the ***disc*** moved anteriorly. In extension, the central

beads

moved anteriorly and the beads closer to the periphery of the

disc

moved posteriorly. After denudection, the bead displacements for

compression and flexion implied an inward bulging of the inner

wall of the

annulus, despite outward bulging of the ***disc***

surface. We

hypothesize that the inward bulging causes radial tensile stresses

within

the ***disc***, leading to disruption of adjacent layers of

annulus

L15 ANSWER 25 OF 31 EMBASE COPYRIGHT 2000

ELSEVIER SCI B V

AN 89225136 EMBASE

DN 1989225136

TI Eighteen-year evolution from the Littlehjel-Kaster valve to the

Omn design.

AU Mikhail A A; Ellis R; Johnson S.

CS Medical Incorporated, Inver Grove Heights, MN 55077, United States

SO Annals of Thoracic Surgery, (1989) 48(4 SUPPL. (S61-S64))

ISSN: 0003-4975 CODEN: ATHSAK

CY United States

DT Journal

FS 006 Internal Medicine

018 Cardiovascular Diseases and Cardiovascular Surgery

027 Biophysics, Bioengineering and Medical Instrumentation

LA English

SL English

AB The Littlehjel-Kaster (LK) cardiac valve was ***implanted***

by C.W.

Littlehjel in 1970, in an attempt to overcome the limitations of other

valvular designs of the day. The LK valve consists of a

free-floating,

pivoting ***disc*** made of pyrolytic carbon, which is inserted

into

an integrally machined titanium housing. The ***disc*** moves

to an

opening angle of 80 degrees, and is retained by two curved

projections

which extend above the valve. The hingeless ***disc***, which

rotates

freely within the housing, is one of the first attempts to achieve

central

flow. The overall profile was substantially reduced from earlier

valve

configurations to minimize the risk of anatomical interference. The

disc configuration has been exceptionally durable, with

only 1

case of ***disc*** fracture (which was successfully reoperated)

reported in the literature out of more than 50,000 ***implants***

worldwide. The integrally machined titanium housing (no welds or

solders)

has had no structural problems through its 18-year history. The

clinical

results with this prosthesis are generally good. A recent study by

Olesen

and colleagues involving 876 patient-years in patients who received

mitral

valve ***implants*** between 1972 and 1980 showed 10-year

freedom from

valve-related morbidity and mortality to be 66%, and from

thromboembolism,

76%. However, the in vivo hemodynamic performance of the LK

valve has been

poorer than anticipated. Various authors noted that high pressure

gradients persist in smaller valves, especially in those patients with

narrow aortic root. Nitter-Hauge and co-workers noted that the LK

valve

had a less favorable ratio of effective orifice area to tissue

annulus diameter.

L15 ANSWER 26 OF 31 MEDLINE

DUPLICATE

9

AN 88331019 MEDLINE

DN 88331019

TI Valve replacement with the tilting ***disc*** Sorin prosthesis

in

patients with narrow aortic ***annulus***

AU Calafiore A M; Santarelli P; Gileca F; Luciani N; Maddalena N;

Paloscio L;

Possati F

CS Department of Cardiac Surgery, University of Chieti, Italy.

SO JOURNAL OF CARDIOVASCULAR SURGERY, (1988

Jul-Aug) 29 (4) 387-91.

Journal code: HAF ISSN: 0021-9509.

CY Italy

DT Journal Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 198812

AB The Authors summarize their 5-year experience of the clinical

use of the

Sorin tilting ***disc*** prosthesis in 40 patients (group A) with

narrow aortic ***annulus***, compared with a control group

(group B:

116 patients) where a larger Sorin prosthesis was

implanted.

Follow-up lasted from 1 to 60 months, with a mean of 25.6 +/- 12.3

in

group A and 20.4 +/- 11.9 in group B. Early and late mortality were

low:

1/40 and 2/39 (2.5 and 5.1%) in group A and 4/116 and 9/112 (3.4

and 8.0%)

in group B (p = NS); only two deaths, one in each group, were

prosthesis-related. Actuarial survival was comparable: 91.2% (CL:

96.3-86.1%) in group A and 78.0% (CL: 87.6-68.4%) in group B,

as were

probability of being event-free and alive, non-reoperated and with

few or

no symptoms (group A: 61.7% (CL: 72.4-51.0%) and 77.4% (CL:

85.9-68.9%)

respectively; group B: 78.8% (CL: 83.4-74.2%) and 61.1% (CL:

85.9-68.9%)

respectively). The Authors conclude that the Sorin tilting

disc

prosthesis is a reliable valve substitute in the narrow aortic

annulus: they recommend that enlargement procedures

should be

confined only to patients with ***annulus*** size less than 19

mm.

L15 ANSWER 27 OF 31 EMBASE COPYRIGHT 2000

ELSEVIER SCI B V

AN 88057126 EMBASE

DN 1988057126

TI [Bioprosthesis versus mechanical heart valve: a hydrodynamic

comparison of

prostheses of same size]

BIOPROTHESE VERSUS MECHANISCHE HERZKLAPPE:

EIN HYDRODYNAMISCHER VERGLEICH VON PROTHESEN GLEICHER GROSSE.

AU Heiliger R.; Lambert H.; Minale C.; Mittermayer C.

CS Rheinisch-Westfälische Technische Hochschule Aachen,

Aachen, Germany

SO Herz Kreislauf. (1988) 20(2) 43-53.

ISSN: 0046-7324 CODEN: HZKLAV

CY Germany

DT Journal

FS 018 Cardiovascular Diseases and Cardiovascular Surgery

027 Biophysics, Bioengineering and Medical Instrumentation

LA German

SL English

AB In order to compare the hydrodynamic effectiveness of

mechanical

prostheses and bioprostheses for ***implantation*** in the

mitral

position, eight heart valve prostheses have been pulsatingly

perfused in a

mock circulation under physiological conditions. Cardiac output

was varied

between 2 l/min and 6 l/min. Reflux and orifice area were

measured.

Insufficiency, mean orifice area, discharge coefficient, performance

index

and efficiency index were calculated. Five mechanical prostheses,

two

bileaflet valves (St. Jude Medical; Duromedics) and three tilting

disc valves (Bjork-Shiley SD, Bjork-Shiley CCD,

Bjork-Shiley

Monosur) as well as three bioprostheses, one pericardial xenograft

(Ionescu-Shiley Standard) and two porcine bioprostheses (Hancock

342,

Xenomedica XAG 100) with an ***annulus*** diameter of 31

mm have been

investigated. With values of insufficiency between 2.0 and 6.2%

the

bioprostheses show lower insufficiency than the mechanical

prostheses. The

orifice areas of the mechanical prostheses up to 480 mm² are

distinctly

larger than the orifice areas of the bioprostheses. Since discharge

coefficient and performance index are dependent on the opening

behaviour

of the prostheses, the mechanical prostheses show better values

than the

bioprostheses. Efficiency index includes both area and

regurgitation.

Although the mechanical prostheses show higher insufficiency, the

efficiency index EI is higher than that of the bioprostheses because

of

the distinctly larger orifice areas: St. Jude Medical: EI = 0.36 +,

0.03; Duromedics: EI = 0.29 +, 0.01; Bjork-Shiley SD: EI = 0.21

+,

0.03; Bjork-Shiley CCD: EI = 0.22 +, 0.03; Bjork-Shiley

Monosur: EI =

0.24 +, 0.02; Ionescu-Shiley Standard: EI = 0.21 +, 0.03;

Hancock 342:

EI = 0.16 +, 0.03; Xenomedica XAG 100: EI = 0.12 +, 0.04.

Although the

mechanical valves present a better efficiency index, none of the two

groups of prostheses is hydrodynamically definitely superior. The

advantage of the bioprosthesis is the low regurgitation. The

mechanical

prosthesis shows as its hydrodynamic advantage an orifice area

much larger

than that of the bioprosthesis. Within the two groups of prostheses,

the

mechanical bileaflet valves show larger orifice areas, i.e. smaller

pressure drops and higher values of insufficiency when compared

with the

tilting ***disc*** valves. Within the groups of bioprostheses,

the

pericardial xenograft is hydrodynamically superior to the porcine

bioprostheses because this valve type shows similar values of

regurgitation but larger orifice areas.

L15 ANSWER 28 OF 31 MEDLINE DUPLICATE

10

AN 88113346 MEDLINE

DN 88113346

TI [Comparative study of mechanical heart valves for

implantation

in mitral position].

Vergleichende Untersuchung mechanischer Herzklappen zur

Implantation in Mitralposition.

AU Heiliger R.; Lambert H.; Geds J.; Mittermayer C.

CS Rheinisch-Westfälischen Technischen Hochschule, Aachen.

SO HERZ. (1987 Dec) 12 (6) 405-12.

Journal code: F88. ISSN: 0340-9937.

CY GERMANY, WEST: Germany, Federal Republic of

DT Journal, Article, (JOURNAL ARTICLE)

LA German

FS Priority Journals

EM 198805

AB For hydrodynamic comparison of mechanical heart valves, three

tilting

disc valves (Bjork-Shiley SD, Bjork-Shiley CCD,

Bjork-Shiley

Monosur) and two bileaflet valves (St. Jude Medical,

Duromedics) with

annulus diameter (A = 31 mm) were perfused in a mock

circulation in

mitral position. Flow, pressure, and orifice area were measured

during

pulsatile flow. Insufficiency, maximal orifice area, mean orifice

area,

performance index and efficiency index were calculated. The tilting

bileaflet

disc valves show distinctly lower orifice areas than the

bileaflet

valves. The mean value of maximal orifice area Amax of the

Bjork-Shiley

prostheses varies between 227.82 +/- 7.77 mm² and 243.21 +/-

6.21 mm². The

mean value of Amax of the Duromedics prosthesis is 295.45 +/-

7.76 mm² and

that of the St. Jude Medical prosthesis is 477.43 +/- 11.32 mm².

The

calculated mean orifice areas A of the bileaflet valves are also

higher

than those of the tilting ***disc*** valves. The mean values of

A are:

Bjork-Shiley SD: 183.55 +/- 10.03 mm²; Bjork-Shiley CCD:

206.30 +/- 8.62

mm²; Bjork-Shiley Monosur: 210.12 +/- 4.74 mm²; St. Jude

Medical: 398.69

+/- 19.55 mm²; Duromedics: 262.90 +/- 6.84 mm². The

performance index PI

is qualitatively identical with the values of the mean orifice area A

because in this study only heart valves of the same size were

investigated. For calculation of insufficiency I the entire reflux

volume

VR including closing volume VS and leakage volume VL was

used, thus,

insufficiency was also determined in intact prostheses. The values

of

insufficiency of the mechanical valves investigated are higher for

the

bileaflet valves than for the tilting ***disc***

valves (ABSTRACT

TRUNCATED AT 250 WORDS)

L15 ANSWER 29 OF 31 MEDLINE DUPLICATE

11

AN 84061951 MEDLINE

DN 84061951

TI Effects of the ablation of the nucleus pulposus on the vibrational

behavior of the lumbosacral hinge.

AU Quaden P.; Pelletier L.; Lienhard F.; Valey B.

SO JOURNAL OF BIOMECHANICS. (1983) 16 (10) 777-84.

Journal code: HJF. ISSN: 0021-9290.

CY United States

DT Journal, Article, (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 198403

AB This study was designed to investigate the respective damping

properties

of the ***annulus*** fibrosis and nucleus pulposus of the

intervertebral ***disc*** during propagation of vibration waves

through the osteoligament-muscular axis of the spine. The study

was

conducted on a 8-10 kg deeply anesthetized baboon. In the first

surgical

phase five accelerometers were ***implanted*** in the first

sacral

vertebra and on the anterior side of the four lower lumbar vertebrae.

The

bioinstrumented animal was placed in a restraining chair and

exposed to

narrow-bandwidth (0-100 Hz) 0.16 G RMS random vibration. Once

data was recorded, the nuclei pulposi of the studied discs were removed by suction, the surrounding annuli remaining intact. The still deeply anesthetized animal was again exposed to the same 0-100 Hz, 0.16 G RMS vibration. Results were analyzed and their reproducibility was tested on three animals.

L15 ANSWER 30 OF 31 EMBASE COPYRIGHT 2000
ELSEVIER SCI. B. V.
AN 80023176 EMBASE
DN 1980023176
TI Echocardiographic evaluation of Bjork-Shiley prosthetic heart valves.

AU Koide Y.
CS II Dept. Surg. Sch. Med., Tokushima Univ., Tokushima, Japan
SO Shikoku Acta Medica, (1979) 33/3-4 (166-179).
CODEN: SKIZAB

CY Japan
DT Journal
FS 019 Rehabilitation and Physical Medicine
018 Cardiovascular Diseases and Cardiovascular Surgery

L.A. Japanese
SL English
AB For this study the ***implanted*** Bjork-Shiley prosthetic valves of

45 patients, who underwent MVR, AVR, MVR and AVR, and MVR and TVR, were echocardiographically examined. The echograms of ***implanted*** B-S

valves with normal function were as follows: The B-S mitral valve showed two parallel echoes in diastole and resembled the echo-pattern of the

anterior mitral valve leaflet in the patients with mild or moderate mitral

stenosis. The B-S aortic valve showed two parallel echoes between the anterior and posterior aortic walls in systole. These echoes disappeared in diastole. The tricuspid B-S valve showed the same pattern of

B-S mitral valves and resembled the echo-pattern of mitral stenosis. According

to the model experience in vitro, the differences of valve echoes between B-S

mitral and the aortic valve seemed to depend upon the direction of the

ultrasonic beam. A paradoxical motion of the interventricular septum was observed in all cases of valve replacement soon after the resuscitation of

the heart during operation. Through the echocardiographic findings, such as round E-point, thick echo of mitral ***annulus***, reduction

of diastolic descent rate, and decreased valve excursion, the thrombosed B-S

mitral valve was diagnosed and successfully replaced. In some cases, para-prosthetic leakage was echocardiographically suspected due to a lack

of paradoxical motion of the interventricular septum. In a patient of early postoperative cardiac tamponade after MVR, the diastolic re-opening of ***disc*** echo, which was like the echopattern of the

constrictive pericarditis, led to the diagnosis. Echocardiographic observation is especially useful for the detection of the dysfunction of the B-S prosthetic valve and other postoperative complications.

L15 ANSWER 31 OF 31 MEDLINE
AN 77170613 MEDLINE
DN 77170613

TI Prosthetic valves 1977: a retrospective analysis and a look to the future.
AU Savage L R
SO MEDICAL INSTRUMENTATION, (1977 Mar-Apr) 11 (2) 107-9.

Journal code: M12. ISSN: 0004-5446.
CY United States
DT Journal, Article, (JOURNAL ARTICLE)

L.A. English
EM 197708
AB Experimental and clinical studies that we published in 1972 indicated that the ability of man to extend tissue inward from the valve

attachment site is limited to few millimeters, and that the cardiovascular wall/valve body spatial relationships are critically important in prevention of thrombotic

complications. Since 1972, clinical observations have supported these conclusions. Cloth-covered valve prostheses in man have failed to

become completely covered by tissue. The tilting ***disc*** valve (Bjork-Shiley) has proved to be an advance over the ball design. However,

for maximum hydraulic efficiency, the 60 degrees opening of the prosthesis must be augmented by positioning the valve in harmony with the

tilt of the ***annulus*** into which is ***implanted***. Currently, we are studying the functional significance (gradient and turbulence) of

various positional relationships of the opened ***disc*** to the tilt of the anatomic valve ***annulus***. Changing the orientation of the

Bjork-Shiley mitral prosthesis, for instance, can mean a difference in

functional opening ranging from 30degrees to 90degrees, and from 45degrees to 75degrees for the aortic valve.

=> file medline

=> s idiopathic scoliosis/ab,bi

38410 IDIOPATHIC/BI
8947 SCOLIOSIS/BI
5401617 AB/FA
1078 IDIOPATHIC SCOLIOSIS/AB
((IDIOPATHIC(W)SCOLIOSIS)BI (L) AB/FA)
38410 IDIOPATHIC/BI
8947 SCOLIOSIS/BI

L16 1539 IDIOPATHIC SCOLIOSIS/AB,BI
((IDIOPATHIC(W)SCOLIOSIS)BI)

=> s 116 and intervertebral disc/ab,bi

14933 INTERVERTEBRAL/BI
31068 DISC#BI
5401617 AB/FA
1859 INTERVERTEBRAL DISC#AB
((INTERVERTEBRAL(W)DISC)BI (L) AB/FA)
14933 INTERVERTEBRAL/BI
31068 DISC#BI
2506 INTERVERTEBRAL DISC#BI
((INTERVERTEBRAL(W)DISC)BI)

L17 11 L16 AND INTERVERTEBRAL DISC#AB,BI

=> d 1-bib ab

YOU HAVE REQUESTED DATA FROM 11 ANSWERS. CONTINUE? Y/(N)Y

L17 ANSWER 1 OF 11 MEDLINE

AN 95053115 MEDLINE
DN 95053115
TI Experimental scoliosis in the rat spine induced by binding the spinous

processes
AU Kasuga K
CS Department of Orthopaedic Surgery, Shinshu University School of Medicine, Nagano, Japan.
SO NIPPON SEIKEIGAKA GAKKAI ZASSHI. JOURNAL OF THE JAPANESE ORTHOPAEDIC ASSOCIATION, (1994 Sep) 68 (9) 798-807.

Journal code: ION. ISSN: 0021-5325.
CY Japan
DT Journal, Article, (JOURNAL ARTICLE)

L.A. Japanese

FS Priority Journals

EM 199502

AB The effects of limitation of spinal mobility in forward flexion on the development of scoliosis was studied in experimental animals. The spinous

processes of three lumbar vertebrae of young female rats were sutured together to make persistent limitation in the forward flexion of the spine. The lumbar vertebrae of rats, which normally are kyphotic in their profile, frequently became flattened or lordotic after the operation.

Scoliosis with a primary curve at the sutured site was produced, although the curve magnitude was mild in 38% of 73 operated rats, and appeared more frequently in those which had more limitation in the spinal mobility at the sutured vertebrae than in those with less limitation. In histological

examinations, the coronal sections of vertebral specimens of scoliotic animals demonstrated wedge-shaped ***intervertebral*** discs***

, deviation in the vertebral nucleus pulposus toward the convex side of scoliosis, and a degeneration in the annulus fibrosus. Thickening of cartilaginous endplates on the convex side and a rupture in them on the concave side were observed in some of the animals. These findings indicated that the experimentally produced scoliosis was structural.

This experimental study suggested that a limitation in the spinal mobility in forward flexion has a causative effect on the development and progress of ***idiopathic*** ***scoliosis***

L17 ANSWER 2 OF 11 MEDLINE
AN 92199626 MEDLINE
DN 92199626

TI Measurement variations in scoliotic angle, vertebral rotation, vertebral body height, and ***intervertebral*** ***disc*** space height.

AU Ylikoski M, Tallroth K
CS Department of Radiology, Orthopaedic Hospital of the Invalid Foundation, Helsinki, Finland.

SO JOURNAL OF SPINAL DISORDERS, (1990 Dec) 3 (4) 387-91.

Journal code: BEQ ISSN: 0895-0385.

CY United States

DT Journal, Article, (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199207

AB Thirty consecutive posteroanterior and lateral radiographs of patients with adolescent ***idiopathic*** ***scoliosis*** with a mean Cobb

angle of 24.4 degrees were read. In measuring the scoliotic angle, the interobserver error (SD) was 2.8 degrees and the intraobserver, 1.8 degrees. Rotation of the apical vertebra was estimated by measuring the translation of the pedicle on posteroanterior radiographs. For vertebral

rotation, the interobserver measurement error (SD) was 3.4 and the intraobserver, 1.8%. The height of the apical vertebral body and the ***intervertebral*** ***disc*** space next inferior to it were measured on lateral radiographs as the anterior angles of the diagonals of the respective body or disc space. In measuring the vertebral body height, the interobserver error (SD) was 3.2 and the intraobserver, 2.6 degrees, and in measuring the ***intervertebral*** ***disc*** space height, the interobserver error was 2.4 and the intraobserver, 1.8 degrees.

The angles can be transformed to a corresponding height/length ratio by a simple trigonometrical formula.

L17 ANSWER 3 OF 11 MEDLINE
AN 92116596 MEDLINE
DN 92116596

TI [Proton spin tomography in children and adolescents with so-called ***idiopathic*** ***scoliosis***] Kernspintomographische Untersuchungen bei Kindern und Jugendlichen mit sogenannter idiopathischer Skoliose.

AU Schneider F, Niehard F U, Obelster N, Schiek H, Glas K, Carstens C
CS Abteilung für Orthopädie im Kindesalter, Universitätsklinik Heidelberg.

SO ZEITSCHRIFT FÜR ORTHOPÄDIE UND IHRE GRENZGEBIETE, (1991 Nov-Dec) 129 (6) 525-30.

Journal code: XZ4 ISSN: 0044-3220

CY GERMANY, Germany, Federal Republic of

DT Journal, Article, (JOURNAL ARTICLE)

LA German

FS Priority Journals

EM 199204

AB Somatic-sensory evoked potentials (SSEP) were found to be pathological mostly in the lower extremities in 26 out of 45 children suffering from so called ***idiopathic*** ***scoliosis***. We examined the

vertebral

spine and the spinal cord of 8 of them (with controlled SSEP-findings) by use of conventional MR-imaging and (where necessary) 3-dimensional data-set following the Fourier-procedure. 6 of the 8 children showed alterations as follows: 1. A lipoma spreading partly extra, partly intraspinaly. 2. Subligamentous protrusions of the ***intervertebral***

disc (2 patients). 3. Dysraphic processes (2 patients). 4. An abnormally cranial ending myelon surrounded by a widened spinal channel. The findings are demonstrated and discussed concerning the questions whether the pathological SSEP and, furthermore, the deformity of the vertebral spine could be explained thereby. We are at least able to prove that some of the children with so called ***idiopathic*** ***scoliosis*** show pathological evoked potentials and MRI-findings.

L17 ANSWER 4 OF 11 MEDLINE
AN 92044173 MEDLINE
DN 92044173

TI Systemic abnormalities in ***idiopathic*** ***scoliosis*** AU Worthington V, Shambaugh P
CS Neurokinetics, Washington, DC 20036.

SO JOURNAL OF MANIPULATIVE AND PHYSIOLOGICAL THERAPEUTICS, (1991 Oct) 14 (8) 467-71. Ref: 84

Journal code: IY5 ISSN: 0161-4754.

CY United States

DT Journal, Article, (JOURNAL ARTICLE)

General Review, (REVIEW)

(REVIEW, TUTORIAL)

LA English

FS Priority Journals

EM 199202

AB Sixty-five to ninety percent of all scoliosis is of unknown origin or idiopathic. During the last 30 yr, researchers worldwide have found a variety of abnormalities in tissues throughout the body, including peripheral muscle, skin, ligaments, platelets, bone, ***intervertebral*** ***disc***, serum and urine. The primary defects appear to be related to collagen and proteoglycan synthesis. The systemic abnormalities seen in ***idiopathic*** ***scoliosis*** cannot be explained by the biomechanical effects of the curvature.

L17 ANSWER 5 OF 11 MEDLINE
AN 92024425 MEDLINE

DN 92024425

T1 [How idiopathic is ***idiopathic*** ***scoliosis*** ?
Results of

neurological studies with somatosensory evoked potentials (SSEP)
in children and adolescents]

Wie idiopathisch ist die idiopathische Skoliose? Ergebnisse
neurologischer

Untersuchungen mit somatosensorisch evozierten Potentialen
(SSEP) bei

Kindern und Jugendlichen.

AU Schneider E, Niehard F U, Schuck H, Carstens C, Pfeil J
CS Stiftung Orthopädische Universitätsklinik Heidelberg.

SO ZEITSCHRIFT FÜR ORTHOPÄDIE UND IHRE
GRENZGEBIETE, (1991 Jul-Aug) 129 (4)

355-61.

Journal code: XZA, ISSN: 0044-3220.

CY GERMANY: Germany, Federal Republic of
DT Journal, Article; (JOURNAL ARTICLE)

LA German

FS Priority Journals

EM 199201

AB About 90% of all the scolioses are called "idiopathic". Various
neurological diseases (for example poliomyelitis, etc.) are
frequently

accompanied by deformities of the spine. The so-called
somatosensory

evoked potentials are at our disposal being a very sensitive and a
non-problematic neurological diagnostic tool. Formation of the
question:

Are there clinically non-detectable neurological changes
demonstrable by

use of evoked potentials in children with so-called

idiopathic

scoliosis 745 non-operated patients suffering from
scoliosis and

21 healthy children were examined clinically, neurologically, and
by use

of evoked potentials. Results: 26/45 children with idiopathic
scoliosis

showed pathological evoked potentials (right-left-side-difference
concerning latency and amplitudes of the potentials and generally
delayed

transmission from peripheral nerves to the somatosensory cortex),
mostly

concerning the lower extremities. 19/45 children showed normal
evoked

potentials (EP). There was no correlation between EP and direction
respectively degree of the scoliosis. Neurological affections mostly
located caudally of the cervical spine are to be discussed (for

example

prominence of the ***intervertebral*** ***disc***
dysraphic

processes etc.)

L17 ANSWER 6 OF 11 MEDLINE

AN 87196759 MEDLINE

DN 87196759

T1 A histopathological study on the ***intervertebral***
disc

of idiopathic and paralytic scoliosis- abnormalities in transition
from

the notochordal nucleus to the fibrocartilaginous nucleus.

AU Tanaka A

SO NIPPON SEIKEIGAKA GAKKAI ZASSHI, JOURNAL OF
THE JAPANESE ORTHOPAEDIC
ASSOCIATION, (1986 Dec) 60 (12) 1227-38.

Journal code: JON, ISSN: 0021-5325.

CY Japan

DT Journal, Article; (JOURNAL ARTICLE)

LA Japanese

FS Priority Journals

EM 198708

AB To elucidate morphologic events, 105 ***intervertebral***
disc in 22 patients with ***idiopathic***

scoliosis
histopathologically

compared with 13 control ***intervertebral*** ***disc***
in 13

cases, including three fetuses. In control ***intervertebral***
disc, the notochordal area became smaller with age, and

was
almost completely occupied by fibrocartilaginous matrix at 16 years

of age
or more. In ***intervertebral*** ***disc*** of patients

aged

19-33 with ***idiopathic*** ***scoliosis***, many

notochordal
cells were seen and many areas without fibrocartilaginous matrix

were

found. In contrast, in ***intervertebral*** ***disc*** of
patients aged 21-35 with paralytic scoliosis, there was no

notochordal

cells or defect of the fibrocartilaginous matrix. The results suggest
an

impairment of transition from the notochordal nucleus to the
fibrocartilaginous nucleus in ***intervertebral***

disc in
patients with ***idiopathic*** ***scoliosis***, and that such
abnormalities are related to the onset of ***idiopathic***
scoliosis

L17 ANSWER 7 OF 11 MEDLINE

AN 83186177 MEDLINE

DN 83186177

T1 The effect of the adolescent growth spurt on early posterior spinal
fusion

in infantile and juvenile ***idiopathic*** ***scoliosis***
AU Helli F L, McMaster M J

SO JOURNAL OF BONE AND JOINT SURGERY, BRITISH
VOLUME, (1983 May) 65 (3)

247-54

Journal code: HK7, ISSN: 0447-9076

CY ENGLAND: United Kingdom

DT Journal, Article; (JOURNAL ARTICLE)

LA English

FS Abridged Index Medicus Journals; Priority Journals

EM 198308

AB Twenty-four children with infantile or juvenile
idiopathic

scoliosis had their spines corrected and solidly fused
posteriorly

before the age of eleven years. The growth of the fusion area was
then

accurately measured for a mean of 4.5 years during the adolescent
growth

spurt. During this period all longitudinal growth in the posterior
elements ceased. The vertebral bodies continued to grow anteriorly,
but

the thick posterior fusion prevented the development of a lordosis.
Initially the anterior growth was accommodated by narrowing of the
intervertebral ***disc*** spaces, but eventually the

vertebral
bodies bulged laterally towards the convexity and pivoted on the

posterior
fusion, giving rise to loss of correction, increasing vertebral rotation

and recurrence of the rib hump.

L17 ANSWER 8 OF 11 MEDLINE

AN 81008161 MEDLINE

DN 81008161

T1 Histopathological study on the ***intervertebral***
disc of

idiopathic ***scoliosis*** (author's transl)

AU Nakamura T

SO NIPPON SEIKEIGAKA GAKKAI ZASSHI, JOURNAL OF
THE JAPANESE ORTHOPAEDIC

ASSOCIATION, (1980 Jun) 54 (6) 523-38.

Journal code: JON, ISSN: 0021-5325.

CY Japan

DT Journal, Article; (JOURNAL ARTICLE)

LA Japanese

FS Priority Journals

EM 198101

AB To elucidate morphologic events, 74 ***intervertebral***
disc

removed by Dwyer instrumentation from 15 scoliotic patients and
10

intervertebral ***disc*** by anterior spinal wedge
osteotomy

from 10 patients were examined, along with 33

intervertebral

disc from autopsy cases. Paraffin sections were stained
with PAS.

toluidine blue and alcian blue in addition to routine stainings. The
results obtained are as follows: (1) Noticeable differences in

stainability of cartilaginous plate, cleft and vasculature of the
matrix

of annulus fibrosus and cellular decrease were obtained in nucleus
pulposus in scoliotic patients as compared with controls. Chordal

cells in nucleus pulposus were found in 30% of scoliotic patients and 9% of controls. (2) In the apical discs, ossification gap of cartilaginous plate decreased, while cleft and vacuolation of annulus fibrosus and formation of cartilage cell cluster in nucleus pulposus were increased. (3) Irregular fiber running, cleft and vacuolation of annulus fibrosus were found in scoliotic patients with the curvature of the spine by more than 60 degrees. Matrix degeneration of cartilaginous plate and irregular fiber running of annulus fibrosus were common in scoliotic patients with higher rotation than grade III of Nash & Moe classification. Conversely, chordal cells in nucleus pulposus were not common in higher rotation cases. Chordal cell remnants were prominent in nucleus pulposus in scoliotic patients. This suggests that some abnormalities occurring during the maturation process of nucleus pulposus are related to the evolution of scoliosis.

L17 ANSWER 9 OF 11 MEDLINE
AN 80050010 MEDLINE
DN 80050010
TI The collagen of the ***intervertebral*** ***disc*** in adolescent
idiopathic ***scoliosis***
AU Bushell G R, Ghosh P, Taylor T K, Sutherland J M
SO JOURNAL OF BONE AND JOINT SURGERY, BRITISH VOLUME, (1979 Nov) 61-B (4)
501-8.
Journal code: HK7, ISSN: 0447-9076
CY ENGLAND; United Kingdom
DT Journal, Article; (JOURNAL ARTICLE)
LA English
FS Abridged Index Medicus Journals; Priority Journals
EM 198003

L17 ANSWER 10 OF 11 MEDLINE
AN 77024724 MEDLINE
DN 77024724
TI Pathogenesis of scoliosis.
AU Ponsell I V, Pedrini V, Wynne-Davies R, Daval-Beaupere G
SO CLINICAL ORTHOPAEDICS AND RELATED RESEARCH, (1976) 00 (120) 268-80
Journal code: DFX, ISSN: 0009-921X
CY United States
DT Journal, Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 197702
AB Scoliosis often occurs in otherwise normal individuals or it may

be associated with many widely differing diseases. The curve patterns are fairly uniform and the vertebrae always rotate in the frontal and horizontal planes producing convex side rotation with little displacement of the spinous processes. Many small curves do not increase. Progressive scoliosis increases linearly and the rate of increase accelerates at puberty. No endocrine abnormalities have been observed in these patients. Usually the deformity is not caused by abnormal vertebral growth nor by abnormal collagen in vertebral ligaments. The glycosaminoglycans of nucleus pulposus are decreased in patients with ***idiopathic*** ***scoliosis***. We speculate that loss of proteoglycans will affect the viscoelastic properties of the ***intervertebral*** ***discs*** which may result in permanent deformation. The etiology of scoliosis appears to be multifactorial with a genetic tendency to the deformity which is triggered in different individuals by different factors, some medical, some mechanical and some genetic.

L17 ANSWER 11 OF 11 MEDLINE
AN 74044960 MEDLINE
DN 74044960
TI Glycosaminoglycans of ***intervertebral*** ***disc*** in ***idiopathic*** ***scoliosis***
AU Pedrini V A, Ponsell I V, Dohman S C
SO JOURNAL OF LABORATORY AND CLINICAL MEDICINE, (1973 Dec) 82 (6) 938-50
Journal code: IYR, ISSN: 0022-2143
CY United States
DT Journal, Article; (JOURNAL ARTICLE)
LA English
FS Abridged Index Medicus Journals; Priority Journals
EM 197403

=> s disc herniation/ab,bi
26941 DISC/BI
4883 HERNIATION/BI
5401617 AB/FA
1127 DISC HERNIATION/AB
(DISCW/HERNIATION/BI (L) AB/FA)
26941 DISC/BI
4883 HERNIATION/BI
1359 DISC HERNIATION/BI
(DISCW/HERNIATION/BI)
L18 1359 DISC HERNIATION/AB,BI
=> s l18 and intervertebral disc/ab,bi

14933 INTER VERTEBRAL/BI
31068 DISC/BI
5401617 AB/FA
1859 INTER VERTEBRAL DISC/AB
(INTER VERTEBRAL(V)/DISC/BI (L) AB/FA)
14933 INTER VERTEBRAL/BI
31068 DISC/BI
2506 INTER VERTEBRAL DISC/BI
(INTER VERTEBRAL(V)/DISC/BI)
L19 245 L18 AND INTER VERTEBRAL DISC/AB,BI
=> s l19 and (annulus or nucleus)/ab,bi

2789 ANNULUS/BI
5401617 AB/FA
2629 ANNULUS/AB
(ANNULUS/BI (L) AB/FA)
2789 ANNULUS/BI
35306 NUCLEOS/BI
5401617 AB/FA
17452 NUCLEOS/AB
(NUCLEOS/BI (L) AB/FA)
35306 NUCLEOS/BI
L20 9 L19 AND (ANNULUS OR NUCLEOS)/AB,BI
=> d l-bib ab

YOU HAVE REQUESTED DATA FROM 9 ANSWERS.
CONTINUE? Y/(N)/y

L20 ANSWER 1 OF 9 MEDLINE
AN 1998152012 MEDLINE
DN 98152012
TI Herniated cervical ***intervertebral*** ***discs***: histological and immunohistochemical characteristics.
AU Baba H, Maczawa Y, Furusawa N, Fukuda M, Uchida K, Kokubo Y, Imura S
CS Department of Orthopedic Surgery, Fuku Medical School, Japan
SO EUROPEAN JOURNAL OF HISTOCHEMISTRY, (1997) 41 (4) 261-70
Journal code: BAL, ISSN: 1121-760X
CY Italy
DT Journal, Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199806
EW 19980603
AB We examined the histological and immunohistochemical changes within and around herniated cervical ***intervertebral*** ***discs***.

A total of 28 herniated discs were harvested en bloc during anterior decompressive surgeries and examined together with the surrounding

tissues. The presence of herniated discs correlated with the degeneration of cartilaginous endplate and torn ***annulus*** fibrosis. Formation of new blood vessels around the herniated discs was detected, using von Willebrand factor antibody, in seven (25% of all) uncontained hernias and eight (38%) contained hernias. Immunohistochemical studies using specific antibodies showed the presence of cells positive for matrix metalloproteinase-3 (chondrocytes), CD68 (macrophages and monocytes), and interleukin-1 beta (endothelial cells), in cervical disc hernias. Our results suggested that the magnitude and degree of immunohistochemical tissue reaction in cervical ***disc*** ***herniation*** correlate with the extent as well as location of herniated disc material.

L20 ANSWER 2 OF 9 MEDLINE
AN 97032052 MEDLINE
DN 97032052
TI Histologic changes in the disc after cervical spine trauma: evidence of

disc absorption.
AU Carreon L Y; Ito T; Yamada M; Uchiyama S; Takahashi H; Ikuta F
CS Department of Orthopaedic Surgery, Niigata University School of Medicine, Japan.
SO JOURNAL OF SPINAL DISORDERS, (1996 Aug) 9 (4) 313-6
Journal code: BEQ. ISSN: 0895-0385.

CY United States
DT Journal, Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199704
EW 19970402

AB We examined the histologic changes in the disc in two cases of traumatic cervical ***disc*** ***herniation*** and compared it with previous histologic studies done in degenerative disc herniations. Differences in the absorption of herniated cartilage endplate and ***annulus*** fibrosis are also discussed. The herniated disc material was surrounded by fibrovascular tissue. Vessels in this fibrovascular tissue were seen to continue into the ***annulus*** fibrosis but not into the endplate. Scattered cartilage fragments and macrophages in the fibrovascular tissue were localized around the margin of the disc. The herniation produced a visible defect in the injured ***intervertebral*** ***disc***

On serial sections, the amount of herniated ***annulus*** fibrosis appeared to be smaller than the defect produced in the ***annulus*** fibrosis of the injured disc. However, the herniated endplate seemed to be the same size as the defect produced in the endplate of the injured disc. Fibrovascular tissue formation, vessel infiltration into ***annulus*** fibrosis, and the presence of peripheral macrophages suggest marginal absorption. The cartilage fragments are probably remnants of disc tissue produced during the process of absorption. These findings are similar to that seen in degenerated herniated discs and suggest an absorptive process. Absorption of the ***annulus*** is more significant than absorption of the endplate.

L20 ANSWER 3 OF 9 MEDLINE
AN 96081406 MEDLINE
DN 96081406
TI Intradiscal injection of hypertonic saline, phenol-glycerin and osmic acid for the treatment of lumbar ***disc*** ***herniation*** : an experimental study.

AU Shiota M
CS Department of Orthopaedic Surgery, School of Medicine, Keio University, Tokyo, Japan.
SO NIPPON SEIKEIGAKA GAKKAI ZASSHI. JOURNAL OF THE JAPANESE ORTHOPAEDIC ASSOCIATION, (1995 Oct) 69 (10) 964-76
Journal code: ION. ISSN: 0021-5325.

CY Japan
DT Journal, Article; (JOURNAL ARTICLE)
LA Japanese
FS Priority Journals
EM 199604

AB The present study was designed to investigate the possible clinical application of hypertonic saline (HS), phenol in glycerin (PHG) and osmic acid (OSA) for intradiscal therapy. MATERIALS & METHODS: HS in several concentrations, 10% PHG and 4% OSA were separately injected into the lumbar ***intervertebral*** ***disc*** of 60 Japanese white rabbits. Additionally, these substances were placed directly on the dura of the spinal cord of 48 guinea pigs. The animals were sacrificed periodically and were submitted to histological examination using light microscopy. RESULT: HS caused localized necrosis of the

nucleus pulposus cells in a concentration-related fashion. Some discs decreased their height. With time, all the discs generally regained their normal histology. Following administration of 10% PHG, the area of necrosis of the nucleus pulposus cells was more extensive than that by HS, but the regenerative or reparative reaction was not so brisk. Examination of the discs treated with 4% OSA demonstrated severe changes in the nucleus pulposus and the inner ***annulus*** fibrosis with resultant disc-space narrowing. The reparative tissue seen after injection of OSA was fibrocartilage in nature. No histological change was seen in the surrounding tissue including the neural tissue following administration of any of the substances. DISCUSSION: Chymopain is the substance most frequently used for clinical chemoneurolysis. The major clinical complication with chymopain has been anaphylaxis. The present substances have been used in other clinical applications without reports of anaphylaxis. In this report, HS was shown to hold the potential for reducing intradiscal pressure without induction of scar tissue or significant loss of disc function. PHG and OSA caused considerable but circumscribed histological damage to the disc tissue, but had no effect on the neural tissues. These data suggested that HS, PHG and OSA may have clinical applications as agents in intradiscal therapy.

L20 ANSWER 4 OF 9 MEDLINE
AN 96014367 MEDLINE
DN 96014367
TI Laparoscopic laser lumbar diskectomy. Operative technique and case report.

AU Sioman G J; Stein S C
CS Department of Surgery, Cooper Hospital/University Medical Center, University of Medicine and Dentistry of New Jersey, Robert Wood Johnson Medical School at Camden 08103, USA.
SO SURGICAL ENDOSCOPY, (1995 Jul) 9 (7) 826-9.
Journal code: VBE. ISSN: 0930-2794.

CY GERMANY; Germany, Federal Republic of
DT Journal, Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199602
AB Approximately 300,000 patients each year in the United States undergo laminectomy for disabling lumbar ***disc*** ***herniation***. Post-laminectomy hospitalization is 3-7 days and convalescence may be

prolonged. As an alternative to laminectomy, we have developed a technique for performing L5-S1 lumbar diskectomy laparoscopically. Using an anterior approach, the ***intervertebral*** ***disc*** space is opened and the diskectomy is performed under direct videolaparoscopic imaging. After pneumoperitoneum is established, the patient is placed in a steep Trendelenburg position. The small bowel is retracted cephalad and the colon is moved to the left. The iliac vessels are identified visually and by Doppler probe, and the presacral space is dissected in the midline to expose the L5-S1 disc. In the case presented, the disc ***annulus*** was opened with the Nd:YAG contact laser, and diskectomy was performed under direct videolaparoscopic vision using standard neurosurgical instruments modified for laparoscopy. The posterior longitudinal ligament can be visualized directly to define the posterior limits of the completed diskectomy. In the case described, pain relief was confirmed immediately after the procedure. The patient was discharged after 2 hospital days, and returned to normal activity in 8 days.

L20 ANSWER 5 OF 9 MEDLINE
AN 94110711 MEDLINE
DN 94110711
TI An experimental study on the pathological changes of the ***intervertebral*** ***disc*** and its surrounding tissues after intradiscal injection of various chemical substances (the first report).
AU Chiba K
CS Department of Orthopaedic Surgery, School of Medicine, Keio University, Tokyo, Japan.
SO NIPPON SEIKAI GAKKAI ZASSHI. JOURNAL OF THE JAPANESE ORTHOPAEDIC ASSOCIATION. (1993 Nov) 67 (11) 1055-60.
Journal code: JON. ISSN: 0021-5325.
CY Japan
DT Journal: Article: (JOURNAL ARTICLE)
LA Japanese
FS Priority Journals
EM 199404
AB The author has investigated the possible clinical application of new suitable and reliable substances for intradiscal therapy.
METHODS: Several concentrations of various chemical substances (HCL, NaOH,

etc.) were injected into the lumbar ***intervertebral*** ***disc*** of 165 Japanese white rabbits. These animals were sacrificed periodically and the obtained disc specimens were submitted to histological examinations with light and electron microscopes. Effects of these substances on the dura mater and the spinal cord of 87 guinea pigs were also investigated histologically. RESULTS: Acids, bases and ethanol, especially in high concentration, caused intense necrosis of nucleus pulposus cells and degeneration of the matrix as well as destruction of the ***annulus***. Fibrosis occasionally with necrosis of endplate cells. Narrowing of disc height was frequently observed. Hemorrhage and inflammatory changes of surrounding tissues including the dura mater and the spinal cord were not rare. While low concentration acids and bases as well as other chemical substances such as osmic acid and phenol showed somewhat confined changes to the nucleus pulposus with minimal changes to peridiscal tissues including the neural structures. In other words, changes induced by these chemical substances were circumscribed to the nucleus pulposus, provided the concentration of the substances were adjusted to an appropriate level. DISCUSSIONS: Recently, chemonucleolysis and percutaneous diskectomy have been recognized as alternatives to surgical treatments for lumbar ***disc*** ***herniation*** and seemed to have established a new concept "intermediate therapy". However, each method has certain disadvantages as well. The purpose of the present study is to find out safer and reliable agents that can dissolve the nucleus pulposus without adverse side effects such as anaphylaxis or transverse myelitis that occurs with some nucleolytic enzymes. In this perspective, the results of this study have provided evidences that certain chemical substances have possible clinical application in intradiscal therapy.

L20 ANSWER 6 OF 9 MEDLINE
AN 92240042 MEDLINE
DN 92240042
TI An observation of ruptured ***annulus*** fibrosis in lumbar discs.
AU Ito S, Yamada Y, Tsuboi S, Yamada Y, Niuro T
CS Department of Orthopaedic Surgery, Social Insurance Chukyo Hospital.

Nagoya, Japan.
SO JOURNAL OF SPINAL DISORDERS. (1991 Dec) 4 (4) 462-6.
Journal code: BEQ. ISSN: 0895-4385.
CY United States
DT Journal: Article: (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199208
AB To observe anatomical or pathological changes in lumbar ***intervertebral*** ***disc***, discography and computed tomography-discography (CTD) were performed on fresh human cadavers. The results of discograms and CTD were compared with histological findings of cross sections of discs. Preoperative CTD of lumbar ***disc*** ***herniation*** was investigated based on these results. Ruptures of the ***annulus*** fibrosis were divided into two categories: circumferential rupture and radial rupture. In CTD images of fresh human cadavers, most images of rupture of the ***annulus*** fibrosis showed anterior to lateral circumferential rupture. As disc degeneration progressed, circumferential rupture tended to coexist with radial rupture in many cases. In CTD cases of lumbar ***disc*** ***herniation***, most images of ruptures of the ***annulus*** fibrosis showed a posterior radial rupture, which was the route for herniated nucleus. The greater the degree of degeneration, the more the images tended to show radial ruptures coexisting with circumferential ruptures.

L20 ANSWER 7 OF 9 MEDLINE
AN 91262707 MEDLINE
DN 91262707
TI Mechanism of disc rupture. A preliminary report.
AU Gordon S J, Yang K H, Mayer P J, Mace A H Jr, Kish V L, Radin E L
CS Department of Orthopaedic Surgery, West Virginia University, Morgantown.
SO SPINE. (1991 Apr) 16 (4) 450-6.
Journal code: UXX. ISSN: 0362-2436.
CY United States
DT Journal: Article: (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199109
AB Lumbar ***intervertebral*** ***disc*** ***herniation*** is thought to be related to senescent changes in the nucleus pulposus except in rare instances of trauma. This investigation provides the first in vitro model of disc prolapse that reliably ruptures discs under physiologically reasonable stress. Fourteen vertebral motion segments with

intact posterior elements were loaded repetitively at 1.5 Hz in a combination of flexion (7 degrees), rotation (less than 3 degrees), and compression (1,334 N) for an average of 6.9 hours (range, 3.0-13.0 hours) in a materials testing machine. Loading was terminated when reaction force leveled off for more than 1 hour. Ten discs failed through annular protrusions, and four failed by nuclear extrusion through annular tears, supporting the hypothesis that ***intervertebral*** disc prolapse is peripheral in origin. The ***annulus*** fibrosis is the site of primary pathologic change.

L20 ANSWER 8 OF 9 MEDLINE
AN 88003187 MEDLINE
DN 88003187
T1 Percutaneous posterolateral discectomy, Anatomy and mechanism.
AU Kamlin P, Brager M.D
CS Graduate Hospital, University of Pennsylvania, School of Medicine,
Department of Orthopaedic Surgery, Philadelphia.
SO CLINICAL ORTHOPAEDICS AND RELATED RESEARCH,
(1987 Oct) (223) 145-54.
Journal code: DEFY, ISSN: 0009-921X

CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Abridged Index Medicus Journals, Priority Journals
EM 198801
AB The evacuation and decompression of the herniated lumbar disc through a sheath inserted dorsolaterally represents a new concept in the treatment of radiculopathy associated with ***disc*** ***herniation***. Only a small portion of the spinal nerve before its descent and positioning anterior to the transverse process is subject to insult by an instrument introduced into the ***intervertebral***. ***disc*** through posterolateral approach. The chance of injury to the spinal nerve is further minimized when the instruments are introduced a distance of approximately 9-10 cm from the midline, parallel to the vertebral plates, penetrating the ***annulus*** at 10 o'clock or 2 o'clock. The rapid decline of intradiscal pressure after dorsolateral fenestration of the ***annulus*** appears to be an important factor in the relief of sciatic pain following percutaneous posterolateral discectomy. The ***intervertebral*** evacuation and decompression of an extruded

disc with a straight instrument may not be possible. Patients with sequestered disc require laminectomy.

L20 ANSWER 9 OF 9 MEDLINE
AN 86304517 MEDLINE
DN 86304517
T1 Histological development of ***intervertebral*** disc***
herniation
AU Yasuna T, Makino E, Saito S, Inui M
SO JOURNAL OF BONE AND JOINT SURGERY, AMERICAN VOLUME, (1986 Sep) 68 (7)
1066-72.
Journal code: HJR, ISSN: 0021-9355.

CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Abridged Index Medicus Journals, Priority Journals
EM 198612
AB Sagittal and horizontal sections of 257 ***intervertebral*** disc*** obtained at autopsy and material obtained from 441 operations for herniation of a disc were examined histologically. In the material that was taken at autopsy, myxomatous degeneration of the ***annulus*** fibrosis increased in proportion to the age of the subject. The bundles in the internal layer of the ***annulus*** fibrosis reversed their usual direction and showed myxomatous degeneration, sometimes resulting in posterior and anterior convex bulging in the internal layer of the anterior and posterior parts of the ***annulus*** fibrosis, respectively. When material from a disc

was surgically removed as a single free fragment (as in a complete extrusion or a sequestration type of herniation), ***annulus*** fibrosis with myxomatous degeneration was found in most material, while the nucleus pulposus rarely was. These results suggest that, from the standpoint of pathomechanism, a protrusion type of herniation of the ***annulus*** fibrosis exists in which only the ***annulus*** fibrosis is protruded due to reversal of the bundles of the ***annulus*** fibrosis, without involvement of the nucleus pulposus. This type of herniation would be a separate entity from the protrusion type of herniation of the nucleus pulposus that occurs when the nucleus pulposus is protruded through a fissure in the ***annulus*** fibrosis.

=> s disc degeneration/ab,bi

26941 DISC/BI
51789 DEGENERATION/BI
5401617 AB/F A
403 DISC DEGENERATION/AB
(DISC(W)DEGENERATION)/BI (L) AB/F A)
26941 DISC/BI
51789 DEGENERATION/BI
456 DISC DEGENERATION/BI
(DISC(W)DEGENERATION)/BI
L21 456 DISC DEGENERATION/AB,BI

=> s l21 and intervertebral disc#/ab,bi

14933 INTERVERTEBRAL/BI
31068 DISC#/BI
5401617 AB/F A
1839 INTERVERTEBRAL DISC#/AB
(INTERVERTEBRAL(W)DISC#/BI (L) AB/F A)
14933 INTERVERTEBRAL/BI
31068 DISC#/BI
2506 INTERVERTEBRAL DISC#/BI
(INTERVERTEBRAL(W)DISC#/BI)
L22 169 L21 AND INTERVERTEBRAL DISC#/AB,BI

=> s l22 and (annulus or nucleus)/ab,bi

2789 ANNULUS/BI
5401617 AB/F A
2629 ANNULUS/AB
(ANNULUS/BI (L) AB/F A)
2789 ANNULUS/BI
35306 NUCLEOS/BI
5401617 AB/F A
17452 NUCLEOS/AB
(NUCLEOS/BI (L) AB/F A)
35306 NUCLEOS/BI

L23 18 L22 AND (ANNULUS OR NUCLEOS)/AB,BI

=> d l- bi,ab

YOU HAVE REQUESTED DATA FROM 18 ANSWERS.
CONTINUE? Y(N)/Y

L23 ANSWER 1 OF 18 MEDLINE
AN 2000142504 MEDLINE
DN 20142504
T1 Investigation on matrix degrading enzymes of lumbar ***intervertebral*** disc***
disc

AU Jiang W, Tang T, Yang H
CS Department of Orthopaedics, First Affiliated Hospital of Suzhou Medical College
SO CHUNG-HUA WAI KO TSA CHIH (CHINESE JOURNAL OF SURGERY), (1997 Nov) 35 (11)
684-6

Journal code: D86. ISSN: 0529-5815.

CY China

DT Journal: Article. (JOURNAL ARTICLE)

LA Chinese

EM 200007

EW 20000701

AB Changes in the macromolecular matrix of the

intervertebral

disc may predispose to biomechanical failure of the disc.

Such

changes would involve extracellular enzymes capable of altering the collagen and proteoglycan of the disc matrix. In this study,

tritium-labeled type I collagen was used as a substrate to estimate

the activity of collagenase in the discs of 41 cases of lumbar disc

protrusion

(LDP) patients by surgical intervention. The ***annulus***

fibrous (AF) and nucleus pulposus (NP) were measured separately. 34

normal discs

harvested by autopsy acted as controls. For estimation of relative

neutral

protease content of 6 normal and 16 degenerated lumbar discs,

polyacrylamide gelelectrophoresis (PAGE), heat-denatured

collagen as a

substrate, and photo-density scanning with peak area

autocalculating

system were adopted. The results presented that both AF and NP of

the normal discs had a similar lower collagenolytic activity and a very

limited activity of neutral proteinase, while the degenerated discs

showed

a higher activity, especially in the degenerated NP. The extruded

type of

LDP got a higher collagenolytic activity in NP than that of the

prolapsed

LDP. The fact showed that the matrix degrading enzymes play a

very

important role in the process of lumbar ***disc***

degeneration. The difference of ***disc***

degeneration is the biochemical basis of different clinical

types

of LDP. Matrix degrading enzyme system is a very complexed

multienzymatic

system. Other neutral proteinases may join this system besides the

collagenase.

L23 ANSWER 2 OF 18 MEDLINE

AN 1999273592 MEDLINE

DN 99273592

TI Cathepsin G in degenerating and healthy discal tissue.

AU Kontinen Y T, Kaapa E, Hukkanen M, Gu X H, Takagi M,

Santavirta S.

Alaranta H, Li T F, Suda A

CS Department of Anatomy, University of Helsinki, Finland

SO CLINICAL AND EXPERIMENTAL RHEUMATOLOGY.

(1999 Mar-Apr) 17 (2) 197-204.

Journal code: DFA. ISSN: 0392-856X

CY Italy

DT Journal: Article. (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199909

AB OBJECTIVES: To assess the eventual presence, tissue

localization,

molecular forms, amount and activity of cathepsin G in the

annulus

fibrosis. METHODS: Normal non-ostolytic disc tissue was

collected from

cadavers within six hours after death. Degenerate disc samples

were

collected from low back pain patients undergoing anterior interbody

fusion

due to severe, discographically verified and painful ***disc***

degeneration, and from the posterior parts of

intervertebral ***discs*** from 10 patients

undergoing

microscopic discectomy because of intervertebral herniation.

Avidin-biotinperoxidase complex staining of cathepsin G was

quantitated by

morphometry. Cellular localization was analyzed using double

immunofluorescence staining of cathepsin G and CD68, proline

4-hydroxylase

or von Willebrand factor. Neutral salt extracts were analyzed by

using

synthetic cathepsin G substrate in spectrophotometry,

dot-immunoblotting

and Western blotting. RESULTS: Histological and morphometric

image

analysis showed increased cellularity, increased numbers of

cathepsin G

positive cells and neovascularization in degenerated discs compared

to

control discs. Neutral salt extract of disc tissue, degenerated or

normal, in contrast to control material from synovial capsular tissue, did not

contain measurable cathepsin G activity, although immunoreactive

enzyme

was detected in dot-immunoblotting. Western blotting

demonstrated that the discal cathepsin G had an apparent molecular weight of 27 kDa.

CONCLUSION:

Due to its properties and localization in normal and pathologically

altered tissue, cathepsin G probably plays both a direct and an

indirect

role in extracellular matrix degradation in the ***annulus***

fibrosis. Extracted cationic cathepsin G was immunoreactive, but

was functionally inhibited by serpins or, more likely, by polyanionic

proteoglycans and saccharins derived from the connective tissue

matrix of

the ***annulus*** fibrosis.

L23 ANSWER 3 OF 18 MEDLINE

AN 1999054202 MEDLINE

DN 99054202

TI An analysis of radiating pain at lumbar discography.

AU Saiduddin A, Emmanuel R, White J, Ranton P, Brainwaite J,

Taylor B A

CS Department of Radiology, The Royal National Orthopaedic

Hospital Trust,

Middlesex, UK.

SO EUROPEAN SPINE JOURNAL. (1998) 7 (5) 358-62.

Journal code: B9Y. ISSN: 0940-6719.

CY GERMANY. Germany, Federal Republic of

DT Journal: Article. (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199904

EW 19990402

AB This study aimed to identify the morphological abnormalities of

the ***intervertebral*** ***disc***, as demonstrated by lumbar

discography, that are associated with pain radiation to the hip, groin,

buttock or lower limb. We carried out a retrospective review of 99

consecutive lumbar discogram reports. The association of

disc

degeneration, annular tears (partial or full thickness) and

the level of disc injected was determined with respect to the presence

and pattern of radiating pain. A total of 260 discs were injected, of

which 179 were considered abnormal. Posterior annular tears were

demonstrated in

84 discs, anterior annular tears in 15 discs and 45 discs had both

anterior and posterior tears. A significant association was identified

between isolated posterior tears and the production of concordant

radiating pain ($P = 0.0041$). No difference was identified between

partial

thickness posterior tears and full thickness posterior tears

associated

with leak of contrast medium, with regard to radiating pain.

Similarly,

there was no significant association between disc level injected and

the pattern of pain radiation. The results indicate that pain experienced

in the buttock, hip, groin or lower limb can arise from the posterior

annulus of the ***intervertebral*** ***disc***

without

direct involvement of the nerve root.

L23 ANSWER 4 OF 18 MEDLINE

AN 1998176951 MEDLINE

DN 98176951

TI Relative increase of biglycan and decorin and altered chondroitin

sulfate

epitopes in the degenerating human ***intervertebral***

disc

AU Inkinen R J, Lammi M J, Lehtinen S, Pusaari K, Kaapa E, Tammi M I
 CS Department of Anatomy, University of Kuopio, Finland
 SO JOURNAL OF RHEUMATOLOGY, (1998 Mar) 25 (3) 506-14.
 Journal code: JWX ISSN: 0315-162X.
 CY Canada
 DT Journal, Article, (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 199807
 EW 19980702
 AB OBJECTIVE: Proteoglycans are major components of the extracellular matrix of the ***intervertebral***. They are vital for the biomechanical properties of the tissue, and are subject to changes in ***disc***. ***degeneration***. We aimed to further define changes and their relationship to normal ageing. METHODS: Normal discs (age 13-53 years, n = 6) were analyzed from 5 different sites across the sagittal anterior-posterior direction. Degenerated anterior ***annulus*** fibrosis was collected from 7 patients aged 39-46 years. Extracted proteoglycans were separated using agarose and polyacrylamide gel electrophoresis and detected with toluidine blue staining and Western blotting. RESULTS: The center of the disc showed the highest level of total proteoglycans, but lowest levels of decorin and biglycan. Western blots displayed reduced signal for both glycanated and nonglycanated biglycan and decorin after adolescence, while an increased signal of biglycan was observed in degenerated annuli. The TDC(-) and 3B3(-) epitopes on native chondroitin sulfate chains were present in the large proteoglycans of ***intervertebral***. ***discs***, but their signal intensity had no correlation to degeneration. Chondroitinase ABC digestion of the blots brought up TDC(-) signal in the small proteoglycans of degenerated, but not in healthy tissue. Decrease or total loss of 2B6(-) epitope (indicating 4-sulfated stubs of chondroitin sulfate chains) were found in the large proteoglycans of all degenerated annuli. CONCLUSION: Human ***intervertebral***. ***disc***. ***degeneration*** involves the accumulation of decorin and biglycan relative to other uronic acid containing proteoglycans, the disappearance of 4-sulfated core region in aggrecan-like large proteoglycans, and the emergence of a core structure in the chains of small proteoglycans reacting with the 7D4 antibody; these findings indicate a

fundamental alteration in matrix properties that may contribute to the pathogenesis of the disease.
 L23 ANSWER 5 OF 18 MEDLINE
 AN 97193912 MEDLINE
 DN 97193912
 TT Topographical variation in the catabolism of aggrecan in an ovine annular lesion model of experimental ***disc***. ***degeneration***
 AU Melrose J, Ghosh P, Taylor T K, Latham J, Moore R
 CS Raymont Purves Bone and Joint Research Laboratories, University of Sydney,
 Royal North Shore Hospital of Sydney, St. Leonards, New South Wales,
 Australia.
 SO JOURNAL OF SPINAL DISORDERS, (1997 Feb) 10 (1) 55-67.
 Journal code: BEQ ISSN: 0895-0385.
 CY United States
 DT Journal, Article, (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 199707
 EW 19970705
 AB An established model of experimental ***disc***. ***degeneration*** (Osei et al., Spine 15:762, 1990; Melrose et al., J Orthop Res 10:655, 1992) was used in this study. Four 2-year-old sheep received anterolateral incisions (4 x 10 mm) in the outer one-third of the ***annulus*** fibrosis of their L2-L3 and L4-L5 discs (lesion group). The ***annulus*** was not incised in another four sham-operated animals. After 6 months the sheep were killed, lumbar discs were dissected into lateral halves of the ***annulus*** fibrosis and the nucleus pulposus. Cells were isolated from disc tissues enzymatically and were grown in alginate bead culture to examine the proteoglycan metabolism of cells from lesion and control zones. The media of lesion zone cultures contained relatively high levels (compared with sham cultures) of catabolic fragments of the large, high-buoyant-density proteoglycans as demonstrated by Western blotting using monoclonal antibodies (5-D-4, 3-B-3, 1-C-6) and biotinylated hyaluronan and also by gel chromatography. Furthermore, cells from the vicinity of the lesion site also synthesized significantly lower

levels (compared with sham cultures) of aggrecan that was retained within the alginate beads. Collectively, these data indicated that focal depletion of large, high-buoyant-density proteoglycans was evident within lesion sites in this model of experimental ***disc***. ***degeneration***. The introduction of an annular lesion therefore significantly affected the proteoglycan metabolism of endogenous disc cell populations. The unique hydrodynamic and viscoelastic properties of the ***intervertebral***. ***disc*** are dependent to a large degree on the tissue levels of aggrecan. The focal depletion of aggrecan by annular lesions therefore may represent an important predisposing factor to the subsequent degeneration of these ***intervertebral***. ***discs***.
 L23 ANSWER 6 OF 18 MEDLINE
 AN 97193911 MEDLINE
 DN 97193911
 TT Analysis of chondroitin sulfate in lumbar ***intervertebral***. ***discs*** at two different stages of degeneration as assessed by discogram.
 AU Hutton W C, Elmer W A, Boden S D, Horton W C, Carr K
 CS Emory Spine Center, Department of Orthopaedic Surgery, Atlanta, Georgia, USA.
 SO JOURNAL OF SPINAL DISORDERS, (1997 Feb) 10 (1) 47-54.
 Journal code: BEQ ISSN: 0895-0385.
 CY United States
 DT Journal, Article, (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 199707
 EW 19970705
 AB Previous studies have presented evidence that an underlying cause of ***intervertebral***. ***disc***. ***degeneration*** is related to changes in the sulfation of the proteoglycans. The sulfation of the chondroitin in cadaveric lumbar ***intervertebral***. ***discs*** at two different stages of degeneration as assessed by discogram, were analyzed. Fourteen of 28 lumbar discs were graded 2 and the other 14 were graded 4 (i.e., more degenerated). From each disc, six regional segments were carefully isolated. Proteoglycans were solubilized from the disc tissue with 4 M GuHCl. Chondroitin sulfate chains were analyzed

by
diethylaminoethyl (DEAE)-Sephacel and high-performance liquid chromatography (HPLC) anion exchange chromatography. The major differences in sulfation of the chondroitin between grade 2 and grade 4 discs only occurred in the posterior central ***annulus*** and nucleus segments.

The chondroitin in the posterior central nucleus segments of the grade 2

and grade 4 ***intervertebral*** discs*** were undersulfated as compared with the other segments, and the differences between these

segments and the others were more accentuated in the grade 4 discs than in grade 2 discs.

L23 ANSWER 7 OF 18 MEDLINE

AN 97172381 MEDLINE

DN 97172381

TI The effects of posterior fixation on internal ***intervertebral***

disc mechanics

AU Edwards A G; McNally D S; Muhlolland R C; Goodship A E
CS Department of Anatomy, University of Bristol, UK.

SO JOURNAL OF BONE AND JOINT SURGERY. BRITISH VOLUME. (1997 Jan) 79 (1)

134-60.

Journal code: HK7. ISSN: 0301-620X.

CY ENGLAND: United Kingdom

DT Journal: Article; (JOURNAL ARTICLE)

LA English

FS Abridged Index Medicus Journals; Priority Journals

EM 199705

EW 19970503

AB Posterior fixation of ***intervertebral*** discs*** is used to

trear, and occasionally diagnose, discogenic pain since it is thought that it will reduce the internal loading of the discs in vitro. We

measured the internal loading of ten ***intervertebral*** discs***

using stress profilometry under simulated physiological loads and then

after

posterior fixation. Partial discectomies were performed to simulate advanced ***disc*** degeneration*** and the sequence repeated

Posterior fixation had very little effect on the magnitude of the loads acting on the disc and none when ***disc***

degeneration was simulated. It did, however, reduce bulging of the anterior

annulus

under combined bending and compression ($p < 0.03$). Recent experiments in

vivo have shown that discogenic pain is associated with abnormal bulging of the ***annulus*** which suggests that the clinical benefit of fixation may be due to this.

L23 ANSWER 8 OF 18 MEDLINE

AN 96429221 MEDLINE

DN 96429221

TI Progressive degeneration of articular cartilage and ***intervertebral***

discs. An experimental study in transgenic mice bearing a type IX

collagen mutation.

AU Kimura T; Nakaki K; Tsunaki N; Miyamoto S; Matsui Y; Ebura S; Ochi T

CS Department of Orthopaedic Surgery, Osaka University Medical School, Japan

SO INTERNATIONAL ORTHOPAEDICS. (1996) 20 (3) 177-81. Journal code: GRF. ISSN: 0341-2695.

CY GERMANY: Germany, Federal Republic of

DT Journal: Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199702

EW 19970204

AB Transgenic mice expressing mutant alpha 1 (IX) collagen were produced and found to develop progressive joint degeneration with age, as well as

accelerated ***intervertebral*** discs***

degeneration. Radiological and histological studies showed that cervical and lumbar

disc degeneration*** was more advanced in the transgenic mice than in control litter-mates. The changes included shrinkage or

disappearance of the nucleus pulposus, and fissures in the ***annulus***

fibrosis which sometimes lead to herniation of disc material and slight osteophyte formation. These findings suggest that mutations of the

type IX collagen may cause certain forms of degenerative disease in the spine as

well as in joints.

L23 ANSWER 9 OF 18 MEDLINE

AN 96123899 MEDLINE

DN 96123899

TI Histological, magnetic resonance imaging, and discographic findings on

cervical ***disc*** degeneration*** in cadaver spines: a comparative study.

AU Maruyama Y
CS Department of Orthopaedic Surgery, Juntendo University School of Medicine,

Tokyo, Japan.

SO NIPPON SEIKIGAKA GAKKAI ZASSHI. JOURNAL OF

THE JAPANESE ORTHOPAEDIC ASSOCIATION. (1995 Nov) 69 (11) 1102-12.

Journal code: JON. ISSN: 0021-5325.

CY Japan

DT Journal: Article; (JOURNAL ARTICLE)

LA Japanese

FS Priority Journals

EM 199605

AB A total of 210 cervical ***intervertebral*** discs*** were taken at autopsy from 36 cadavers, and underwent both magnetic

resonance imaging (MRI) and discography to compare their diagnostic

efficacies for investigating degenerative changes in the cervical spine. The age of

the subjects had ranged from 43 to 92 years with an average of 68.1

years. Following the autopsy, MRI and discography were performed on

the excised cervical spinal column, and the specimen was then prepared for

histological examination. The findings were compared with those of the

lumbar spine that had previously been reported by Yasuma et al. on

1238 lumbar discs from 197 cadavers ranging in age from 11 to 92 years.

The results were as follows: 1) Low intensity in the T2-weighted MRI

was well correlated with histological degeneration in the cervical disc disc.

2) The rate of appearance of the posterior protrusion of the cervical

disc on the MRI was in accordance with the degree of histological

disc degeneration***, but it did not always correspond with

histological posterior protrusion. There was a remarkably high incidence for

false-positive posterior protrusion on the MRI, which should be kept in

mind on reading the MRI. 3) In the comparison of the MRI with the

discography, a certain positive correlation was found as for ***disc***

degeneration, but not in complete accordance. 4) There was a

considerable difference in the patterns of degeneration and in posterior

protrusion of the discs between the cervical spine and the lumbar

spine. The posterior protrusion in the cervical disc was more likely related

to horizontal fissure and hyalinization of the posterior ***annulus***, while posterior protrusion in the lumbar disc was often related to

reversed orientation of the bundles and myxomatous degeneration of the

posterior ***annulus***. This difference was attributed to the difference in the mechanical properties of the cervical and lumbar spines.

L23 ANSWER 10 OF 18 MEDLINE

AN 96013121 MEDLINE

DN 96013121

TI Changes of proteoglycans in lumbar ***intervertebral***
disc

of bipedal rats with aging

AU Dong F, Dai K, Hou X

CS Ninth Peoples Hospital, Shanghai Second Medical University.

SO CHUNG-HUA I HSUEH TSA CHIH [CHINESE MEDICAL

JOURNAL], (1995 Jun) 75 (6)

352-4, 383.

Journal code: CDG. ISSN: 0376-2491.

CY China

DT Journal; Article; (JOURNAL ARTICLE)

LA Chinese

EM 199601

AB Using a computer based image analysis system and histological sections stained with Safranin O, we investigated systematically the variation of

proteoglycans (PG) contents in the low lumbar discs of bipedal rats. Topographically, the PG concentration increased from the outer

annulus to the inner nucleus pulposus region, which possesses the

highest PG concentration. The PG content decreased with age, and

a significant loss of PG was observed in the lumbar discs of bipedal rats as

compared with controls, especially in the nucleus pulposus. These observations support the view that the higher abnormal mechanical

stresses accelerates ***disc*** ***degeneration***

L23 ANSWER 11 OF 18 MEDLINE

AN 95171236 MEDLINE

DN 95171236

TI Effects of axial traction stress on solute transport and proteoglycan synthesis in the porcine ***intervertebral*** ***disc*** in

vitro.

AU Terahata N, Ishihara H, Ohshima H, Hirano N, Tsuji H

CS Department of Orthopaedic Surgery, Faculty of Medicine,

Toyama Medical and

Pharmaceutical University, Japan.

SO EUROPEAN SPINE JOURNAL, (1994) 3 (6) 325-30.

Journal code: B9Y. ISSN: 0940-6719.

CY GERMANY; Germany, Federal Republic of

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199506

AB The effects of axial traction stress on intradiscal hydration, solute

transport and proteoglycan synthesis were examined in 658 porcine

coccygeal ***intervertebral*** ***disc*** in vitro

Measurements

were performed in three tissue fractions: nucleus pulposus, inner and

outer ***annulus*** fibrosis. At 0.80 MPa traction stress, the equilibrium hydration did not change in the nucleus pulposus.

However, in the inner and outer ***annulus***, the equilibrium hydration

was reduced, and the change led to an increase of the effective fixed

charge density. Diffusion of solute to the nucleus pulposus was

significantly suppressed at 0.80 MPa traction stress. The fluid flow of the

intervertebral ***disc*** tended to be suppressed during the

creep recovery process after compression. The proteoglycan

synthesis rate in the outer ***annulus*** was markedly suppressed by traction

stress of 0.80 MPa for 4 h, but not that in the nucleus pulposus. These

results suggest that a prolonged excessive axial traction stress induces a

decrease in tissue hydration in the ***annulus*** fibrosis, and this

may lead to an increase in the fractional volume of solid in the matrix

and tissue osmotic pressure, resulting in diffusion inhibition of

solute and suppression of proteoglycan synthesis. Thus, prolonged and

excessive spinal traction may accelerate ***disc*** ***degeneration***

L23 ANSWER 12 OF 18 MEDLINE

AN 92240042 MEDLINE

DN 92240042

TI An observation of ruptured ***annulus*** fibrosis in lumbar discs.

AU Ito S, Yamada Y, Tsuboi S, Yamada Y, Miuro T

CS Department of Orthopaedic Surgery, Social Insurance Chulyo

Hospital,

Nagoya, Japan.

SO JOURNAL OF SPINAL DISORDERS, (1991 Dec) 4 (4) 462-6.

Journal code: BEQ. ISSN: 0895-0385.

CY United States

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199208

AB To observe anatomical or pathological changes in lumbar

intervertebral ***disc*** discography and computed

tomography-discography (CTD) were performed on fresh human

cadavers. The results of discograms and CTD were compared with histological

findings of cross sections of discs. Preoperative CTD of lumbar disc herniation

was

investigated based on these results. Ruptures of the

annulus fibrosis were divided into two categories: circumferential rupture

and radial rupture. In CTD images of fresh human cadavers, most

images of the ***annulus*** fibrosis showed anterior to lateral

circumferential rupture. As ***disc*** ***degeneration*** progressed, circumferential rupture tended to coexist with radial

rupture in many cases. In CTD cases of lumbar disc herniation, most

images of ruptures of the ***annulus*** fibrosis showed a posterior radial

rupture, which was the route for herniated nucleus. The greater the

degree of degeneration, the more the images tended to show radial ruptures

coexisting with circumferential ruptures.

L23 ANSWER 13 OF 18 MEDLINE

AN 92238250 MEDLINE

DN 92238250

TI Quantitative analysis of ***intervertebral*** ***disc*** structure.

AU Isherwood I, Pendergast D J, Hickey D S, Jenkins J P

CS Department of Diagnostic Radiology, University of Manchester, England.

SO ACTA RADIOLOGICA. SUPPLEMENTUM, (1986) 369

492-5.

Journal code: 1XY. ISSN: 0365-5954.

CY Sweden

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199207

AB A reduction in signal intensity from the nucleus can be a feature of

intervertebral ***disc*** disease. It has been established that T1 and T2 relaxation times of the nucleus decrease with age

and that evidence of ***disc*** ***degeneration*** can be determined before

classical clinical features are apparent. A robust multiple point algorithm has been developed which now enables proton density

and T1 and T2 values to be computed for each pixel, providing images which

effectively spatial maps of these parameters. Such high resolution

maps have provided quantitative data from volunteers, patients and

cadavers. These studies have been carried out with specially constructed coils

and the cadaveric information compared with cut sections. The spatial

maps revealed detailed anatomic structures including the laminae of the

annulus and relative levels of hydration. These levels,

which are known to be related to the ability of the disc to withstand compressive loads, can now be measured in vivo. Analysis of the proton density and relaxation times in vivo has demonstrated that both water content and the chemical environment in the nucleus change during aging. The results are consistent with changes in the glycosaminoglycan content and fixed density measured by other chemical and physical techniques. Such detailed methods can be used to investigate the effects of aging and disease on disc structure and have enabled observations to be made of the effects of stress on the normal disc.

L23 ANSWER 14 OF 18 MEDLINE
AN 90214042 MEDLINE
DN 90214042
TI The distribution of calcific deposits in ***intervertebral***
discs of the lumbosacral spine.
AU Feinberg J, Boachie-Adjei O, Bullough P G, Boskey A L
CS Department of Pathology, Hospital for Special Surgery, New York, New York 10021.

NC 5132 MA-07 (NIDCR)
DE-04141
SO CLINICAL ORTHOPAEDICS AND RELATED RESEARCH.
(1990 May) (254) 303-10.
Journal code: DFY. ISSN: 0009-921X.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Abridged Index Medicus Journals; Priority Journals
EM 199007
AB The incidence of ***intervertebral*** ***disc***
calcifications (IVDCs) was examined in 52 lumbosacral spines obtained sequentially at autopsy. The presence of calcific deposits was detected by fine-grain roentgenograms. The nature of these deposits was determined by wide-angle x-ray diffraction, and histologic observations were made. A high prevalence of IVDC, 18 spines of 52, some with multiple deposits, was noted. Calcium pyrophosphate dihydrate (CPPD) deposits were found in 3% of the spines and accounted for 29% of the 42 deposits analyzed. The CPPD deposits occurred at multiple disc levels (an average of four per spine), were diffuse, and involved a major portion of the disc (nucleus pulposus).

annulus fibrosis, and endplate) but were not generally associated with histologic ***disc*** ***degeneration***
Hydroxyapatite (HA) deposits occurred in 12% of the spines, most often in the nucleus pulposus and endplate. The HA deposits appeared as small punctate radiodensities.
Roentgenographic evidence of degenerative changes, i.e., disc space narrowing, endplate disruption, desiccation, and osteophyte formation, were present in all but one of the spines containing HA deposits.
An additional 19% of the spines had deposits that could not be characterized by x-ray diffraction but were very similar in roentgenographic appearance to HA deposits. No conclusions could be drawn on the relationship between the presence of HA or CPPD and collagen or hexosamine content.

L23 ANSWER 15 OF 18 MEDLINE
AN 89084705 MEDLINE
DN 89084705
TI Metaplastic proliferative fibrocartilage as an alternative concept to herniated ***intervertebral*** ***disc***
AU Lipson S J
CS Department of Orthopedic Surgery, Harvard Medical School, Brigham and Women's Hospital, Boston, Massachusetts.
SO SPINE. (1988 Sep) 13 (9) 1055-60.
Journal code: UXX. ISSN: 0362-2436.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 198904
AB It is hypothesized on the basis of experimental ***intervertebral*** ***disc***
disc ***degeneration*** that herniated disc is actually newly synthesized proliferative metaplastic fibrocartilage and not herniation of pre-existing disc tissue, particularly that of the nucleus pulposus.
Human material in selected surgical tissues was examined to test this concept.
Histology revealed evidence for proliferative fronts of fibroblastic cells in herniated discs with hypocellular interiors. Hydroxypyridinium cross-link assay was used to determine the maturity of the collagen. Results indicated, with statistical significance, that herniated disc is a younger tissue than in situ ***annulus*** fibrosis, and that herniated disc is not from the nucleus pulposus, thus supporting the

hypothesis.
L23 ANSWER 16 OF 18 MEDLINE
AN 85134075 MEDLINE
DN 85134075
TI ***intervertebral*** ***disc*** ***degeneration*** in adult mice with hereditary kyphoscoliosis.
AU Mason R M, Palfrey A J
SO JOURNAL OF ORTHOPAEDIC RESEARCH. (1984) 2 (4) 333-8.
Journal code: JIQ. ISSN: 0736-0266.

CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 198506
AB Breeding experiments confirmed that a hereditary form of kyphoscoliosis in the BDL strain mouse was due to an autosomal recessive gene (ky). Segittal sections of whole vertebral columns from adult homozygous recessive mice (ky/ky) were examined histologically. All mice showed varying degrees of degenerative change in one or more ***intervertebral*** ***discs*** between the fifth cervical and the second thoracic vertebrae. The changes comprised loss of cells, loss of distinction between nucleus pulposus and ***annulus*** fibrosis, loss of characteristic ring-like structure in the ***annulus***, and development of wedge-shaped discs. In most animals, degenerative disc substance protruded from the disc space, usually posteriorly, sometimes anteriorly, and occasionally through the vertebral end plate cartilage. Posterior protrusions impinged on the spinal cord.
L23 ANSWER 17 OF 18 MEDLINE
AN 81184643 MEDLINE
DN 81184643
TI Biochemical changes in ***intervertebral*** ***disc***
degeneration
AU Lyons G, Eisenstein S M, Sweet M B
SO BIOCHIMICA ET BIOPHYSICA ACTA. (1981 Apr) 673 (4) 443-53.
Journal code: AOV. ISSN: 0006-3002.
CY Netherlands
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 198109
AB The distribution of the principal matrix components, collagen, proteoglycans and water, across the diameter of human normal and

degenerate ***intervertebral*** ***discs*** was compared. Little difference in collagen distribution was noted between normal and degenerate tissue but water and proteoglycan content decreased with degeneration, particularly in the centre of the disc. Proteoglycans of the nucleus pulposus and ***annulus*** fibrosis of normal and degenerate ***intervertebral*** ***discs*** were examined. In comparison with monomers of normal tissues, degenerate disc proteoglycans were of larger average hydrodynamic size and had a higher glucosamine to galactosamine ratio. Proteoglycans were digested with chondroitinase ABC and passed over an HS-Sepharose 2B affinity column. A greater proportion of the keratan sulphate-protein cores from degenerate disc were capable of interaction with the immobilized hyaluronate. Loss of aggregating ability was associated with diminution in size of the core. It is suggested that a large proportion of proteoglycans from normal disc have undergone a degree of degradation in the hyaluronate binding region and that proteoglycan synthesis in this tissue is slower than in degenerate tissue.

L23 ANSWER 18 OF 18 MEDLINE
AN 80006725 MEDLINE
DN 80006725
TI Factors in the development of the spinal stenosis syndrome.
AU Naylor A
SO JOURNAL OF BONE AND JOINT SURGERY. BRITISH VOLUME. (1979 Aug) 61-B (3)
306-9.
Journal code: HK7 ISSN: 0447-9076.
CY ENGLAND: United Kingdom
DT Journal: Article. (JOURNAL ARTICLE)
LA English
FS Abridged Index Medicus Journals; Priority Journals
EM 198001
AB The spinal stenosis syndrome is a potential hazard when congenital or developmental narrowing of the bony canal, particularly in its lateral recesses where it can be demonstrated by axial tomography, places the emergent nerve root and its blood supply at risk to further small compressive elements. When lumbar ***disc*** ***degeneration*** allows rotatory and lateral instability, posterolateral bulging of the ***annulus*** fibrosis into the root canal occurs when weight is taken on the ipsilateral lower limb. Symptoms of the spinal stenosis syndrome do

not arise until the development of this instability. To relieve the symptoms, the nerve root must be freely mobilised and decompressed by full lateral decompression, with partial or total facetectomy if necessary, by craniectomy of the ***intervertebral*** ***disc*** and by removal of the posterolateral portions of the annuli fibrosi.

=> s spinal stenosis/ab,bi
156008 SPINAL/BI
74705 STENOSIS/BI
5401617 AB/F/A
820 SPINAL STENOSIS/AB
(SPINAL(W)STENOSIS)BI (L) AB/F/A
156008 SPINAL/BI
74705 STENOSIS/BI
2072 SPINAL STENOSIS/BI
(SPINAL(W)STENOSIS/BI)
L24 2072 SPINAL STENOSIS/AB,BI
=> s L24 and intervertebral disc/ab,bi
14933 INTERVERTEBRAL/BI
26941 DISC/BI
5401617 AB/F/A
1365 INTERVERTEBRAL DISC/AB
(INTERVERTEBRAL(W)DISC)BI (L) AB/F/A
14933 INTERVERTEBRAL/BI
26941 DISC/BI
1928 INTERVERTEBRAL DISC/BI
(INTERVERTEBRAL(W)DISC/BI)
L25 54 L24 AND INTERVERTEBRAL DISC/AB,BI

=> s L25 and (annulus or nucleus)?/ab,bi

2789 ANNULUS/BI
5401617 AB/F/A
2629 ANNULUS/AB
(ANNULUS/BI (L) AB/F/A)
2789 ANNULUS/BI
33306 NUCLEOS?/BI
5401617 AB/F/A
17452 NUCLEOS?/AB
(NUCLEOS?/BI (L) AB/F/A)
33306 NUCLEOS?/BI
L26 1 L25 AND (ANNULUS OR NUCLEOS?)/AB,BI
=> d btb ab

L26 ANSWER 1 OF 1 MEDLINE
AN 80006725 MEDLINE
DN 80006725
TI Factors in the development of the ***spinal***

stenosis syndrome.
AU Naylor A
SO JOURNAL OF BONE AND JOINT SURGERY. BRITISH VOLUME. (1979 Aug) 61-B (3)
306-9.
Journal code: HK7 ISSN: 0447-9076.
CY ENGLAND: United Kingdom
DT Journal: Article. (JOURNAL ARTICLE)
LA English
FS Abridged Index Medicus Journals; Priority Journals
EM 198001
AB The ***spinal*** ***stenosis*** syndrome is a potential hazard when congenital or developmental narrowing of the bony canal, particularly in its lateral recesses where it can be demonstrated by axial tomography, places the emergent nerve root and its blood supply at risk to further small compressive elements. When lumbar disc degeneration allows rotatory and lateral instability, posterolateral bulging of the ***annulus*** fibrosis into the root canal occurs when weight is taken on the ipsilateral lower limb. Symptoms of the ***spinal*** ***stenosis*** syndrome do not arise until the development of this instability. To relieve the symptoms, the nerve root must be freely mobilised and decompressed by full lateral decompression, with partial or total facetectomy if necessary, by craniectomy of the ***intervertebral*** ***disc*** and by removal of the posterolateral portions of the annuli fibrosi.

disc and by removal of the posterolateral portions of the annuli fibrosi.
=> s L25 and (implant? or allograft?)/ab,bi
129989 IMPLANT?/BI
5401617 AB/F/A
84121 IMPLANT?/AB
(IMPLANT?/BI (L) AB/F/A)
129989 IMPLANT?/BI
281209 TRANSPLANT?/BI
5401617 AB/F/A
93564 TRANSPLANT?/AB
(TRANSPLANT?/BI (L) AB/F/A)
281209 TRANSPLANT?/BI
23710 ALLOGRAFT?/BI
5401617 AB/F/A
16456 ALLOGRAFT?/AB
(ALLOGRAFT?/BI (L) AB/F/A)
L27 3 L25 AND (IMPLANT? OR TRANSPLANT? OR ALLOGRAFT?)/AB,BI

=> d 1 - bib ab

YOU HAVE REQUESTED DATA FROM 3 ANSWERS -
CONTINUE? Y/(N)y

L27 ANSWER 1 OF 3 MEDLINE

AN 96272130 MEDLINE

DN 96272130

TI Median corpectomy in cervical spondylotic multisegmental stenosis.

AU Burger R, Tom J C, Vince G H, Hofmann E, Reiners K, Roosen K

CS Neurohirnurgische Klinik, Universitat Wurzburg
SO ZENTRALBLATT FUR NEUROCHIRURGIE, (1996) 57 (2)

62-9.

Journal code: Y6C, ISSN: 0044-4231.

CY GERMANY, Germany, Federal Republic of
DT Journal, Article: (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199611

AB Cervical median corpectomy as an alternative to laminoplasty and laminectomy has been suggested as an effective treatment for cervical

spondylotic myelopathy (CSM) in cases of multisegmental

stenosis.

We report on our experience with this procedure with particular

reference to neurological outcome and complications. Median

corpectomy was

performed in 17 cases (3 female, 14 male; mean age 59 yrs, (41-80

yrs)

with cervical myelopathy (CM) and radiologically diagnosed

multisegmental

spondylotic stenosis and spinal cord compression seen on MRI.

The degree

of stenosis was determined by means of the modified Pavlov's

index (ratio

between spinal canal width at the level of the

intervertebral

disc and the diameter of the vertebral body itself). 3/17

patients

suffered from acute, 4/17 from subacute and 10/17 from chronic

CM. Single

level corpectomy was performed in 9 cases, one and a half

vertebrae were

removed in 2 cases and dual level corpectomy was performed in the

remaining 6 cases. All patients received an autologous bone graft

and AO -

anterior plate stabilization or were stabilized as described by

Morscher.

Postoperative follow - up was possible in 16/17 cases over a mean

time of

13.5 months. Myelopathy was graded according to Nurick's scale.

Postoperatively, 1.2% with chronic CM improved by two grades,

38% (2 pts,

with acute, 3 with subacute and 1 with chronic CM) improved by

one grade.

The other patients remained stable, none showed worsening of their

myelopathy. Paresis improved in 92%, sensory deficits in 69%,

spasticity

in 73%, pain in 60%, and vegetative disturbances in 100% of all

patients

presenting these preoperative symptoms respectively. One patient

died due

to esophageal perforation and subsequent lethal mediastinitis

caused by

screw loosening 4 months following surgery and after initial

neurological

improvement. 4 other patients experienced screw loosening, three

with

osteoporosis, one remained clinically asymptomatic with concomitant

graft

displacement in two of these. One patient had to be re-operated due

to a

hematoma at the iliac crest and 2 suffered from a pelvic fracture of

the

spina iliea at the site of graft removal. With respect to the

neurological improvement, especially to the motor function and

spasticity,

median corpectomy can be regarded as an effective procedure in

selected

cases with cervical myelopathy, even when treatment related

complications

are taken into consideration.

L27 ANSWER 2 OF 3 MEDLINE

AN 94351232 MEDLINE

DN 94351232

TI Clinical application of AW glass ceramic prosthesis in spinal

surgery.

AU Yamamoto T, Shimizu K

CS Department of Orthopaedic Surgery, Faculty of Medicine, Kyoto

University.

SO NIPPON SEIKEIGAKA GAKKAI ZASSHI. JOURNAL OF

THE JAPANESE ORTHOPAEDIC

ASSOCIATION, (1994 Jul) 68 (7) 505-15.

Journal code: JON, ISSN: 0021-5325.

CY Japan

DT Journal, Article: (JOURNAL ARTICLE)

LA Japanese

FS Priority Journals

EM 199412

AB Bone prosthesis of apatite- and wollastonite-containing

glass-ceramic

(AW-GC), a new synthesized material, is known to be excellent in

bonding

directly with adjacent living bone tissue, in having strong

mechanical

strength and no toxic effects, in experimental studies. In spinal

surgery,

massive and strong bone grafts are required for reconstruction of the

spinal column affected by a tumor, trauma, or a degenerative

disease.

However, utilization of bone ***allograft*** is not yet socially

accepted in Japan and also there are other barriers against the

supply of

allograft bone. In the present study, AW-GC bone

prosthesis was

used for reconstructive surgery for various spinal diseases and

follow-up

studies were performed for an average of 14.9 months (range: 2-36

mo). The

clinical results were satisfactory. Thirty patients (males: 17 and

females: 13) with an age range of 40-75 years (mean: 55.3 years)

were

reviewed in this study. Preoperative diagnoses for which an

AW-GC

prosthesis was required were as follows: vertebral prosthesis: 15

with

metastatic tumor of the spine, 3 with burst fracture of the

thoraco-lumbar

spine; vertebral spacer: 6 with degenerative spondylolisthesis, 2

with

isthmic spondylolisthesis, 2 with lumbar ***intervertebral***

disc herniation, and one with spinal canal stenosis.

Patients

satisfaction, roentgenographic evaluation, laboratory data on blood

and

urine, and toxic effects were examined in these patients. As a

result, the

patient's satisfaction for the AW-GC bone prosthesis was high, and

the

initial fixation and long term stability were excellent. For lyphotic

deformity and scoliosis, postoperative correction could be

maintained in

two patients where correction was attempted, and the usefulness of

AW-GC

prosthesis as a spinal prosthesis was confirmed. Good bone

formation

around the prosthesis was observed with time. The clear zone

(radiolucent

line between ceramic and bone) tended to decrease or disappear.

There were,

no systemic or local toxic side-effects considered to be due to the

AW-GC

bone prosthesis, or no abnormalities in the laboratory data. These

findings suggested that the AW-GC bone prosthesis is a new

biomaterial

with excellent properties which can be successfully substituted for

bone

graft in reconstructive spinal surgery.

L27 ANSWER 3 OF 3 MEDLINE

AN 86162536 MEDLINE

DN 86162536

TI Instrumentation of the lumbar spine. An overview.

AU Bradford D S

SO CLINICAL ORTHOPAEDICS AND RELATED RESEARCH, (1986 Feb) (203) 209-18.

Journal code: DFY. ISSN: 0009-921X.

CY United States
DT Journal, Article; (JOURNAL ARTICLE)

LA English

FS Abridged Index Medicus Journals; Priority Journals

EM4 198607

AB The use of any ***implant*** system to promote arthrodesis of any

segment of the spine is only as good as the technique of surgical arthrodesis. The success of the ***implant*** depends, in short,

on

the success of the arthrodesis. A successful arthrodesis depends on meticulous soft-tissue debridement, decontamination, and copious iliac bone

grafting or ***allograft*** bone grafting if autogenous graft is deficient. If the anterior approach is used, complete and thorough debridement of the ***intervertebral*** ***disc*** and

cartilaginous end-plates with meticulous bone grafting of the interspace

is essential for a successful fusion. A pseudarthrosis in the presence

of an ***implant*** will eventually lead to ***implant*** failure. In

implants placed anteriorly, this may lead to severe consequences

and complications. If ***implants*** are used anteriorly and

arthrodesis is not achieved, a posterior spinal fusion should be carried

out. All ***implants*** used anteriorly should be placed laterally

away from great vessels, particularly the femoral artery. If separation

from the vessels and the ***implant*** is not possible, the ***implant*** should either be removed or the vessels should

be protected with a Dacron graft placed over any protruding metal.

=> s 116 or 118 or 121 or 124

L28 5231 L16 OR L18 OR L21 OR L24

=> s 128 and allograft?/ab.bi

23710 ALLOGRAFT?/BI

5401617 AB/FA

16456 ALLOGRAFT?/AB

(ALLOGRAFT?/BI (L) AB/FA)

23710 ALLOGRAFT?/BI

L29 18 L28 AND ALLOGRAFT?/AB.BI

=> d 1- bib ab

YOU HAVE REQUESTED DATA FROM 18 ANSWERS -
CONTINUE? Y(N)Y

L29 ANSWER 1 OF 18 MEDLINE

AN 2000078006 MEDLINE

DN 20078006

TI Use of ***allograft*** bone for posterior spinal fusion in

idiopathic ***scoliosis***

AU Grogan D P; Kalen V; Ross T J; Guidem K J; Pugh L J

CS Shriners Hospital for Children, Tampa, FL 33612-9499, USA.

SO CLINICAL ORTHOPAEDICS AND RELATED RESEARCH, (1999 Dec) (369) 273-8

Journal code: DFY. ISSN: 0009-921X

CY United States

DT Journal, Article; (JOURNAL ARTICLE)

LA English

FS Abridged Index Medicus Journals; Priority Journals

EM4 200003

EW 20000304

AB Eighty-seven adolescents with ***idiopathic***

scoliosis (77

female and 10 male patients) who underwent posterior spinal fusion with

instrumentation using only ***allograft*** bone for graft material

were evaluated retrospectively. The average age at surgery was 14 years 3

months. Each patient had a minimum 2-year followup, with an average of 3

years 5 months followup. The average preoperative curve was 59 degrees

thoracic (range: 31 degrees-90 degrees) and 52 degrees lumbar (range: 21

degrees-65 degrees). At followup, the thoracic curve measured an average

of 35 degrees and the lumbar curve measured an average of 34 degrees. The

average loss of correction from the immediate postoperative period until

last followup was 6.5 degrees or 11% in the thoracic curve and 10 degrees or 19% in the lumbar curve. There were seven reoperations, one of

these reoperations involved repair of a pseudarthrosis. There was one clinical

infection. The typical patient had a 2-ounce ***allograft*** at an

average cost of \$8160. The patients' average loss of correction, complication rate, and reoperation rate compare favorably with

results reported in other series using autograft bone. The authors of this study

showed the ability of ***allograft*** bone to produce reliable results with a satisfactory outcome. The potential advantages of using

allograft must be weighed against the potential disadvantages before recommending its routine use.

L29 ANSWER 2 OF 18 MEDLINE

AN 1999213337 MEDLINE

DN 99213337

TI Modified open-door laminoplasty for treatment of neurological deficits in

younger patients with congenital ***spinal*** ***stenosis***

analysis of clinical and radiographic data

AU Shaffrey C J; Wiggins G C; Pincittelli C B; Young J N; Lovell L R

CS Department of Neurological Surgery, Henry Ford Hospital, Detroit, Michigan

48202, USA

SO JOURNAL OF NEUROSURGERY, (1999 Apr) 90 (4 Suppl) 170-7

Journal code: JD3. ISSN: 0022-3085.

CY United States

DT Journal, Article; (JOURNAL ARTICLE)

LA English

FS Abridged Index Medicus Journals; Priority Journals; Cancer Journals

EM4 199906

EW 19990604

AB OBJECT: Multilevel anterior cervical decompressive surgery and fusion

effectively treats cervical myeloradiculopathy that is caused by severe

cervical ***spinal*** ***stenosis***, but degenerative changes at

adjacent vertebral levels frequently result in long-term morbidity. The

authors performed a modified open-door laminoplasty procedure in which

allograft bone and titanium miniplates were used to treat cervical

myeloradiculopathy in younger patients with congenital canal stenosis

while maintaining functional cervical motion segments. Pre- and postoperative magnetic resonance imaging and/or computerized tomography

myelography were performed to assess changes in cervical spinal canal

dimensions. Pre- and postoperative flexion-extension radiographs were

compared to determine the residual motion of the targeted operative

segments. METHODS: Twenty younger patients (average age 37.7 years)

underwent modified open-door laminoplasty for treatment of myelopathy or

myeloradiculopathy related to significant cervical ***spinal*** ***stenosis*** with or without associated central or lateral

disc ***herniation*** or foraminal stenosis. These surgeries

were performed during a 2-year period and follow-up review remains ongoing

(average follow-up period 21.6 months). Reconstructive procedures

were performed on an average of 4.1 levels (range three-six). Operative time averaged 186 minutes (range 93-229 minutes). Average blood loss was 305 ml (range 100-650 ml). No cases were complicated by neurological deterioration, infection, wound breakdown, graft displacement, or hardware failure. The patients' Nurick Scale grade improved from a preoperative average of 1.8 to a postoperative average of 0.5. Pre- and postoperative sagittal spinal diameter averaged 11.2 mm (8-14 mm) and 16.6 mm (13-19 mm), respectively. The sagittal compression ratio (sagittal/patent x 100%) increased from 48% pre- to 72% postoperatively. The spinal canal area increased an average of 55% (range 19-127%). In patients in whom pre- and postoperative flexion-extension radiographs were obtained, 72.7% residual neck motion was maintained. No patient developed increased neck or shoulder pain. Neurological symptoms improved in all patients, with total relief of myelopathy in 50% and partial improvement in 50%.

CONCLUSIONS: Modified open-door laminoplasty with ***allograft*** bone and titanium miniplates effectively treats neurological deficits in younger patients with congenital and ***spinal*** stenosis***.

Although long-term results are unknown, short-term results are good and there is a low incidence of complications.

L29 ANSWER 3 OF 18 MEDLINE
AN 1999014919 MEDLINE
DN 99014919
TI Chondromyxoid fibroma of bone presenting as chronic back pain [published erratum appears in J Manipulative Physiol Ther 1999 Feb;22(2):122]
AU Schmidt R G, Reddy C S, Applegate T D, Chhabra M
CS Musculoskeletal Tumor and Limb Reconstruction Center, Bala Cynwyd, PA, USA
SO JOURNAL OF MANIPULATIVE AND PHYSIOLOGICAL THERAPEUTICS, (1998 Oct) 21 (8) 564-7
Journal code: 1553-0161 ISSN: 0161-4754
CY United States
DT Journal Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199903
AB OBJECTIVE: To discuss a case of chondromyxoid fibroma presenting with low

back pain. CLINICAL FEATURES: A 50-yr-old man had an 8-yr history of low back pain. This was diagnosed and treated as arising from the disc and caused by ***spinal*** stenosis***. Magnetic resonance imaging findings supported the clinical findings. Years later, a plain radiograph of the pelvis revealed an incidental abnormality of the right ilium, and the patient was subsequently referred to a musculoskeletal tumor center for treatment. INTERVENTION AND OUTCOME: The lesion was surgically removed and the defect was reconstructed via bone ***allograft***.

CONCLUSION: Such tumors are a rare cause of back pain. Tumors of the pelvis can at times present as back pain. In cases of refractory back pain, an X-ray of the pelvis can be a useful screening investigation. Chondromyxoid fibromas are rare tumors best treated by excision if they are amenable or by curettage and bone grafting procedures.

L29 ANSWER 4 OF 18 MEDLINE
AN 1998315569 MEDLINE
DN 98315569
TI Defatted, gas-sterilized cortical bone ***allograft*** for posterior lumbar interbody vertebral fusion.
AU Kakuchi M, Ono K
CS Department of Orthopaedic Surgery, Osaka Police Hospital, Japan.
SO INTERNATIONAL ORTHOPAEDICS, (1998) 22 (2) 69-76.
Journal code: GRE ISSN: 0341-2695
CY GERMANY, Germany, Federal Republic of
DT Journal Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199811
EW 19981104
AB In posterior lumbar interbody vertebral fusion operations, variously sized, rectangular shaped, defatted, freeze-dried, gas-sterilized cortical bone ***allografts*** were used in combination with cancellous bone autografts from excised posterior elements. Single-level fusion, with or without internal fixation, was undertaken in 38 patients aged 50 years or less with ***disc*** herniation*** or a failed discectomy (the younger group) and in 33 women aged 60 years or more with degenerative spondylolisthesis (the older group). Of the various observable

indicators of union, changes in the ***allograft***-host interface alone proved to be of practical use. The incidence of nonunion in patients managed with pedicle screws, with a hook and rod system or without internal fixation was 0 of 8 patients; 1 of 14 patients; and 3 of 16 patients, respectively, in the younger group, and 0 of 11 patients; 0 of 8 patients; and 2 of 14 patients, respectively, in the older group. Of the six patients with nonunion, three had persistent low back pain and only two had mobility of the fused segment which was evident on lateral radiographs during flexion and extension. No patient had graft collapse. The decrease in the height of the intervertebral space, chiefly due to settlement of the ***allograft*** into the vertebral bodies, in the younger and older groups averaged 1.1 and 1.6 mm, respectively. We concluded that this simplified technique is mechanically sound and effective in maintaining the height of the intervertebral space. Even when the graft failed to unite, fibrous union could be obtained without graft collapse.

Combination with a simple internal fixator, such as a compression rod, facilitates bone union.

L29 ANSWER 5 OF 18 MEDLINE
AN 1998077569 MEDLINE
DN 98077569
TI Tricalcium phosphate ceramics and ***allografts*** as bone substitutes for spinal fusion in ***idiopathic*** scoliosis*** as bone substitutes for spinal fusion in ***idiopathic*** scoliosis***: comparative clinical results at four years.
AU Le Huec J C, Leprieu E, Delavigne C, Clement D, Chateaux D, Le Rebeller A
CS Department d'Orthopedie, CHU Pellegrin Tripode, Bordeaux, France.
SO ACTA ORTHOPAEDICA BELGICA, (1997 Sep) 63 (3) 202-11.
Journal code: 1022-1022 ISSN: 0001-6462
CY Belgium
DT Journal Article; (JOURNAL ARTICLE)
LA English
EM 199803
AB The authors present the results of a comparative study of two series of posterolateral arthrodeses for scoliosis performed using COTREL DUBOUSSE I instrumentation. Fifty-four consecutive patients underwent surgery for ***idiopathic*** scoliosis*** using the same technique.

Thirty patients received a graft consisting of a mixture of corticocancellous autologous and allogenic bone frozen at -80 degrees, and 24 patients were grafted with a mixture of cortico-cancellous autologous bone and sticks of tricalcium phosphate (TCP, Biosorb, SBM, Lourdes, France). All patients were seen at three, six and twelve months, then once a year for at least four years with clinical and radiological evaluation at each visit. At the final follow up visit, no radiologic signs of pseudarthrosis were found in either group with a minimum follow-up of 4 years. The appearance of bone callus was considered satisfactory at 6 months in all cases; moreover callus seemed to be more important in the TCP series, although this assessment was subjective. TCP resorption was total after 2 years, while ***allograft*** fragments were visible on x-rays after 2 years. Minor mechanical complications occurred but did not influence the results. Loss of correction was 8% of that initially obtained in the ***allograft*** group and 2% in the TCP group. Loss of correction did not progress months in the TCP group and after 2 years in the ***allograft*** group. Based upon this experience, the use of synthetic bone substitutes such as TCP would appear to be a valuable alternative to ***allografts*** in posterolateral spinal arthrodesis for ***idiopathic***, ***scoliosis***, and it would eliminate the risk of viral contamination inherent to ***allograft*** implantation. To our knowledge, there have been no previous comparative studies concerning the use of tricalcium phosphate versus ***allograft*** in the literature.

L29 ANSWER 6 OF 18 MEDLINE
AN 97345470 MEDLINE
DN 97345470
TI ***Allograft*** bone use during instrumentation and fusion in the treatment of adolescent ***idiopathic***, ***scoliosis***
AU Bianco J S; Sears C J
CS Department of Orthopedic Surgery, University of Virginia Health Sciences Center, Charlottesville, USA
SO SPINE. (1997 Jun 15) 22 (12) 1338-42.
Journal code: UXX. ISSN: 0362-2436.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)

LA English
FS Priority Journals
EM 199710
EW 19971003
AB STUDY DESIGN: In a retrospective study, 25 patients undergoing posterior spine fusion with ***allograft*** bone and Correl-Dubouset Instrumentation were assessed regarding the efficacy of ***allograft*** bone use. OBJECTIVES: To determine if ***allograft*** bone use had deleterious effects regarding fusion rates and maintenance of deformity correction. SUMMARY OF BACKGROUND DATA: Previous studies using ***allograft*** bone in adult lumbar spine fusion models have consistently shown poor fusion rates. Studies in the pediatric population have been more favorable but in idiopathic cases have used cast or brace immobilization with Harrington instrumentation. METHODS: Twenty-five skeletally immature patients with is average age of 14 +/- 4 years and an average follow-up of 4 +/- 2 years (minimum of 3 years) were evaluated with anteroposterior, lateral, and oblique radiographs to assess the fusion mass. RESULTS: Preoperative curves averaged 55.5 degrees and immediate correction averaged 58% with an average postoperative curve of 23.2 degrees. Loss of correction at final follow-up was 3.7 degrees. No pseudarthroses were identified clinically or radiographically. CONCLUSIONS: ***Allograft*** bone use in the pediatric patient with ***idiopathic***, ***scoliosis*** undergoing rigid segmental instrumentation dependably results in fusion with good maintenance of correction.

L29 ANSWER 7 OF 18 MEDLINE
AN 97304192 MEDLINE
DN 97304192
TI Histochemical demonstration of nitric oxide in herniated lumbar discs. A clinical and animal model study.
AU Hashizume H; Kawakami M; Nishi H; Tamaki T
CS Department of Orthopedic Surgery, Wakayama Medical College, Japan.
SO SPINE. (1997 May 15) 22 (10) 1080-4.
Journal code: UXX. ISSN: 0362-2436.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199710

EW 19971001
AB STUDY DESIGN: This study was designed to localize the cells that produce nitric oxide in a lumbar ***disc***, ***herniation*** by histochemical method, including in situ hybridization. OBJECTIVE: To clarify which cells in herniated lumbar discs produce nitric oxide. SUMMARY OF BACKGROUND DATA: It was reported that herniated lumbar intervertebral disc specimens in culture are capable of producing nitric oxide. METHODS: Surgical specimens from lumbar ***disc***, ***herniation*** were examined to determine nitric oxide synthase histologically using nicotinamide adenine dinucleotide phosphate diaphorase histochemistry. ***Allografts*** of intervertebral disc materials were placed on the epidural space at L6 level in the rat. Nitric oxide synthase was examined in the applied tissues using nicotinamide adenine dinucleotide phosphate diaphorase histochemistry and in situ hybridization histochemistry. RESULTS: Nicotinamide adenine dinucleotide phosphate diaphorase (nitric oxide synthase) positive cells were observed in 2 (40%) of 5 herniated disc materials in patients. The positive cells were mainly in granulation tissue around intervertebral disc materials. In animal models, nitric oxide synthase-positive cells were observed in all specimens at 1 and 2 weeks postoperatively. Newly formed vessels and small round cells in granulation tissue around the grafted intervertebral disc showed positive reaction. In situ hybridization demonstrated the expression of inducible isoform of nitric oxide synthase messenger RNA (mRNA) identical to small round cells around the applied intervertebral disc. CONCLUSION: Nitric oxide in a lumbar ***disc***, ***herniation*** is mainly produced by cells in granulation tissue around the herniated intervertebral disc.

L29 ANSWER 8 OF 18 MEDLINE
AN 97304191 MEDLINE
DN 97304191
TI The role of phospholipase A2 and nitric oxide in pain-related behavior produced by an ***allograft*** of intervertebral disc material to the sciatic nerve of the rat.
AU Kawakami M; Tamaki T; Hashizume H; Weinstein J N; Melter S T

CS Department of Orthopedic Surgery, Wakayama Medical College, Japan.

SO SPINE. (1997 May 15) 22 (10) 1074-9.

Journal code: UXX. ISSN: 0362-2436.

CY United States

DT Journal; Article. (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199710

EW 19971001

AB STUDY DESIGN: To elucidate the pathomechanisms of radicular pain secondary to lumbar ***disc*** ***herniation***. OBJECTIVES: To evaluate whether intervertebral disc material applied to the sciatic nerve produces

hyperalgesia, and if the hyperalgesia is influenced by inhibitors of phospholipase A2 and nitric oxide synthase. SUMMARY OF BACKGROUND DATA:

Previously, the authors reported that application of nucleus pulposus and annulus fibrosus material to the lumbar epidural space produces different forms of hyperalgesia (mechanical versus thermal), with different and distinct histologic changes. Additional pharmacologic studies showed that phospholipase A2 and nitric oxide are involved in the mechanisms that

produce the mechanical and thermal hyperalgesia, respectively. N omega-nitro-L-arginine methyl ester and meperidine are relatively selective inhibitors of nitric oxide synthase and phospholipase A2, respectively.

However, it is not known what the relation is between the hyperalgesia produced and the activation and involvement of phospholipase A2 and production of nitric oxide, or why the application of nucleus pulposus and annulus fibrosus produces different types of hyperalgesia. METHODS: Experiments were performed in five groups of rats:

The control group (no treatment), the sham group (exposure of the sciatic nerve only), the fat group (***allografted*** fat on the sciatic nerve), the nucleus pulposus group (***allografted*** nucleus pulposus) and the nucleus pulposus + annulus fibrosus group (***allografted*** nucleus pulposus and annulus fibrosus).

Withdrawal threshold and latency from mechanical pressure and a radiant heat source were measured preoperatively and postoperatively. After local nerve administration of N theta-nitro-L-arginine methyl ester or meperidine into the operated site, sensitivities to noxious stimuli were

reevaluated after treatment. RESULTS: Only rats in the nucleus pulposus group showed evidence of mechanical hyperalgesia. However, injection of N theta-nitro-L-arginine methyl ester resulted in evidence of mechanical hyperalgesia in the nucleus pulposus + annulus fibrosus group.

Mechanical hyperalgesia was produced in the nucleus pulposus group and after injection of N theta-nitro-L-arginine methyl ester in the nucleus pulposus+annulus fibrosus group, both of which returned to normal after meperidine injection. There were no significant changes in sensitivity to thermal stimuli in any of the experimental groups. CONCLUSION: It appears that phospholipase A2 and nitric oxide play important but different roles in pathomechanisms of radicular pain in lumbar ***disc*** ***herniation***.

L29 ANSWER 9 OF 18 MEDLINE AN 97048603 MEDLINE DN 97048603 TT Pathomechanism of pain-related behavior produced by ***allografts*** of intervertebral disc in the rat

AU Kawakami M, Tamaki T, Weinstein J N, Hashizume H, Nish H, Meller S T CS Department of Orthopedic Surgery, Wakayama Medical College, Japan.

SO SPINE. (1996 Sep 15) 21 (18) 2101-7. Journal code: UXX. ISSN: 0362-2436

CY United States DT Journal; Article. (JOURNAL ARTICLE) LA English FS Priority Journals EM 199704 EW 19970402

AB STUDY DESIGN: This study was designed to evaluate whether ***allografts*** of intervertebral disc materials produce hyperalgesia in the rat and whether an immune response, pH, or chemicals correlate with the induced hyperalgesia. OBJECTIVE: To elucidate the pathomechanisms of radicular pain secondary to lumbar ***disc*** ***herniation***.

SUMMARY OF BACKGROUND DATA: It has been reported that a low pH, an autoimmune reaction, or chemical radiculitis is likely responsible for radicular pain associated with lumbar ***disc*** ***herniation***. In animal studies, it has been shown that hyperalgesia (an increased sensitivity to painful stimuli) involves activation of phospholipase A2

and nitric oxide synthase. METHODS: Fat, nucleus pulposus, and annulus fibrosus were ***allografted*** into the epidural space at L6 in the rat. Withdrawal response thresholds to mechanical stimuli and response latencies to thermal stimuli on the tail and pH in the applied tissues were measured after surgery. Interleukin-1, phospholipase A2, and nitric oxide synthase were examined in the applied tissues using immunohistochemistry, nicotinamide adenine dinucleotide phosphate-dependent histochemistry, and in situ hybridization. RESULTS: ***Allografted*** fat did not produce hyperalgesia.

Allografts of nucleus pulposus and nucleus pulposus plus annulus fibrosus showed evidence of mechanical and thermal hyperalgesia, respectively. There were no observed changes in pH over time. Although interleukin-1 was demonstrated in all applied tissues, phospholipase A2 was only observed around the applied nucleus A2 was only observed around the applied nucleus

pulposus and nucleus pulposus plus annulus fibrosus. Nitric oxide synthase was only markedly increased around the applied tissues. CONCLUSION: The nucleus pulposus and annulus fibrosus produce different forms of hyperalgesia (mechanical vs. thermal) associated with different and distinct immunohistochemical changes. It is possible that radicular pain of a lumbar ***disc*** ***herniation*** results from chemicals, such as phospholipase A2 and nitric oxide.

L29 ANSWER 10 OF 18 MEDLINE AN 95171205 MEDLINE DN 95171205 TT Lumbosacral arthrodesis with lous technique. Review of 186 cases.

AU Beguristain J L, Martinez Peric R, Barrion R H, Villas C CS Department of Orthopedic Surgery and Traumatology, University of Medicine, School of Medicine, University of Navarra, Pamplona, Spain..

SO EUROPEAN SPINE JOURNAL. (1994) 3 (3) 169-71. Journal code: B9Y. ISSN: 0950-6719.

CY GERMANY; Germany, Federal Republic of DT Journal; Article. (JOURNAL ARTICLE) LA English FS Priority Journals EM 199506

AB A retrospective study was carried out of 186 patients surgically treated by lumbosacral arthrodesis using Louis plates from 1981 to 1989 with an

average follow-up of 7.2 years (range 3-11). The average age of the patients was 42.2 years (range 11-71). The indication for surgery was a herniated disc and segmentary instability in 29% (54 patients), spondylolysis or spondylolisthesis in 26.3% (49 patients), arthritis zygapophysialis (hypertrophy) and stenosis in 5.9% (11 patients), tumour in 5.4% (10 patients), fractures in 0.5% (1 patient) and combinations of the above in 21.5% (40 patients who mainly had a herniated disc and associated ***spinal*** ***stenosis***). Iliac crest autograft was used in 33 cases (17.7%), bank ***allograft*** in 5 (2.6%), and in the other 148 patients the graft was obtained from the arthrodesis bed. After follow-up we observed loosening of the screws in 20 patients and screw rupture in 10. We only documented 2 cases of pseudarthrosis using dynamic X-radiography. We conclude that the Louis plate is a simple method that leads to lumbosacral arthrodesis with a low rate of pseudarthrosis.

L29 ANSWER 11 OF 18 MEDLINE
AN 95149199 MEDLINE
DN 95149199
TI Experimental study of intervertebral disc ***allograft*** in the dog
AU Katsura A, Hukuda S
CS Department of Orthopaedic Surgery, Shiga University of Medical Science, Shiga, Japan.
SO SPINE. (1994 Nov 1) 19 (21) 2426-32.
Journal code: UXX. ISSN: 0362-2436.
CY United States
DT Journal: Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199505
AB STUDY DESIGN: An investigation of the use of intervertebral disc ***allograft*** as a potential alternative to intervertebral fusion was performed. In 13 adult mongrel dogs, intervertebral disc units cryopreserved after slow freezing were grafted. OBJECTIVES: To evaluate the morphologic and biosynthetic damage caused by cryopreserving the canine intervertebral disc before ***allografting***.
SUMMARY OF BACKGROUND DATA: Cryopreservation did not alter the normal histologic appearance. The metabolic activity, measured by 35S-sulfate

incorporation, was observed to be 44% of the fresh control. METHODS: Transplanted intervertebral discs were examined histologically and radiographically at 12, 24, and 48 weeks after surgery. RESULTS: The ***allograft*** disc had preserved annular and nuclear architecture with moderate loss of chondrocytes 12 weeks after grafting. However, the intervertebral disc showed evidence of progressive ***disc*** degeneration*** 1 year after transplantation. CONCLUSIONS: More investigation of storage methods is needed to enhance the viability of the intervertebral disc for successful intervertebral disc ***allografting***.

L29 ANSWER 12 OF 18 MEDLINE
AN 94351232 MEDLINE
DN 94351232
TI Clinical application of AW glass ceramic prosthesis in spinal surgery.
AU Yamamoto T, Shimizu K
CS Department of Orthopaedic Surgery, Faculty of Medicine, Kyoto University, SO NIPPON SEIKIGAKA GAKKAI ZASSHI JOURNAL OF THE JAPANESE ORTHOPAEDIC ASSOCIATION. (1994 Jul) 68 (7) 505-15.
Journal code: JON. ISSN: 0021-5325.
CY Japan
DT Journal: Article; (JOURNAL ARTICLE)
LA Japanese
FS Priority Journals
EM 199412
AB Bone prosthesis of apatite- and wollastonite-containing glass-ceramic (AW-GC), a new synthesized material, is known to be excellent in bonding directly with adjacent living bone tissue, in having strong mechanical strength and no toxic effects, in experimental studies. In spinal surgery, massive and strong bone grafts are required for reconstruction of the spinal column affected by a tumor, trauma, or a degenerative disease. However, utilization of bone ***allograft*** is not yet socially accepted in Japan and also there are other barriers against the supply of ***allograft*** bone. In the present study, AW-GC bone prosthesis was used for reconstructive surgery for various spinal diseases and follow-up studies were performed for an average of 14.9 months (range: 2-36 mo). The clinical results were satisfactory. Thirty patients (males: 17 and

females: 13) with an age range of 40-75 years (mean: 55.3 years) were reviewed in this study. Preoperative diagnoses for which an AW-GC prosthesis was required were as follows: vertebral prosthesis: 15 with metastatic tumor of the spine, 3 with burst fracture of the thoraco-lumbar spine, vertebral spacer: 6 with degenerative spondylolisthesis, 2 isthmus spondylolisthesis, 2 with lumbar intervertebral ***disc*** herniation***, and one with spinal canal stenosis. Patient's satisfaction, roentgenographic evaluation, laboratory data on blood and urine, and toxic effects were examined in these patients. As a result, the patient's satisfaction for the AW-GC bone prosthesis was high, and the initial fixation and long term stability were excellent. For lyphotic deformity and scoliosis, postoperative correction could be maintained in two patients where correction was attempted, and the usefulness of AW-GC prosthesis as a spinal prosthesis was confirmed. Good bone formation around the prosthesis was observed with time. The clear zone line between ceramic and bone) tended to decrease or disappear. There were no systemic or local toxic side-effects considered to be due to the AW-GC bone prosthesis, or no abnormalities in the laboratory data. These findings suggested that the AW-GC bone prosthesis is a new biomaterial with excellent properties which can be successfully substituted for bone graft in reconstructive spinal surgery.

L29 ANSWER 13 OF 18 MEDLINE
AN 92308363 MEDLINE
DN 92308363
TI ***Allograft*** versus autograft bone in ***diaphyseal*** scoliosis*** surgery: a multivariate statistical analysis [letter]
AU Lonstein JE
SO JOURNAL OF PEDIATRIC ORTHOPAEDICS. (1992 Jul-Aug) 12 (+) 547.
Journal code: HSW. ISSN: 0271-6798.
CY United States
DT Letter
LA English
FS Priority Journals
EM 199210
L29 ANSWER 14 OF 18 MEDLINE
AN 91317974 MEDLINE

DN 91317974
 TI ***Allograft*** versus autograft bone in ***idiopathic***
 scoliosis surgery: a multivariate statistical analysis.
 AU Fabry G
 CS Department of Orthopaedics, University Hospital Pellenberg,
 Katholieke
 Universiteit, Leuven, Belgium.
 SO JOURNAL OF PEDIATRIC ORTHOPEDICS, (1991 Jul-Aug)
 11 (4) 465-8.
 Journal code: HSW, ISSN: 0271-6798.
 CY United States
 DT Journal Article, (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 199111
 AB The use of autograft versus ***allograft*** bone in scoliosis
 surgery
 is critically evaluated by a multivariate statistical analysis. Two
 groups
 of patients matched for age, angle of curve, and length of fusion,
 forming
 a consecutive series of posterior arthrodesis for ***idiopathic***
 scoliosis, were evaluated. Group A consisted of 83
 patients
 receiving autograft, and group B consisted of 99 patients receiving
 allografts. There was a significant reduction in operation
 time in
 the ***allograft*** group, and blood loss also decreased. After 1
 year
 there was no significant difference in correction of the curve. Given
 the
 problems of discomfort at the donor site scar, we recommend the
 use of
 allograft bone in scoliosis surgery.

L29 ANSWER 15 OF 18 MEDLINE
 AN 91126583 MEDLINE
 DN 91126583
 TI Knott rod distraction instrumentation in lumbosacral arthrodesis.
 AU Nasca R J, Littlefield P D
 CS Division of Orthopaedic Surgery, University of Alabama,
 Birmingham.
 SO SPINE, (1990 Dec) 15 (12) 1356-9.
 Journal code: UXX, ISSN: 0362-2436.
 CY United States
 DT Journal Article, (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 199105
 AB Review of 40 patients undergoing lumbosacral fusions over a
 4-year period
 was done to determine the value, efficiency, and safety of Knott
 rod
 distraction instrumentation. The age range was 30-80 years. Mean
 age was
 51 years. Follow-up was 1-4 years. Twenty patients underwent
 decompression

and fusion for ***spinal*** ***stenosis***, nine underwent
 spinal
 arthrodesis for instability, six underwent the same for
 spondylolisthesis,
 and five underwent fusions for other diagnoses. A posterior midline
 approach was used. Laminar hook sites were prepared, and care was
 taken to
 prevent dural compression or tearing. Balanced distraction was
 done to
 restore soft tissue tension and stability. No attempt was made to
 reduce
 deformity. A posterior and lateral mass fusion augmented with
 allograft bone was performed on all but three patients, in
 whom
 autogenous bone was used. The majority of patients were placed in
 a
 custom-molded lumbosacral orthosis for 3-6 months after operation.
 There
 were no neurologic complications, dural tears, or
 pseudomeningoceles. The
 first sacral laminae were instrumented in 22 patients. Nine of the 40
 patients underwent rod removal. Reasons for removal were pain
 due to
 loosening in five patients and failure of fusion in two. On rod
 removal in
 two patients, no abnormality was found. Insertion within the sacral
 laminae did not lead to neurologic complications. The major
 problem
 appeared to be loosening, which necessitated rod removal in 12%
 of the
 patients. Knott rod distraction instrumentation is a safe and
 effective
 method of internal fixation for lumbosacral fusions.

L29 ANSWER 16 OF 18 MEDLINE
 AN 88228135 MEDLINE
 DN 88228135
 TI ***Allograft*** versus autograft bone in scoliosis surgery.
 AU Dodd C A, Fergusson C M, Freedman L, Houghton G R,
 Thomas D
 CS Nuffield Orthopaedic Centre, Oxford, England.
 SO JOURNAL OF BONE AND JOINT SURGERY, BRITISH
 VOLUME, (1988 May) 70 (3)
 431-4.
 Journal code: HK7, ISSN: 0301-620X
 CY ENGLAND, United Kingdom
 DT Journal Article, (JOURNAL ARTICLE)
 LA English
 FS Abridged Index Medicus Journals, Priority Journals
 EM 198809
 AB The results of a study of the use of autograft versus
 allograft
 bone in the surgery of idiopathic adolescent scoliosis are presented.
 Two
 groups of patients, matched for age, sex, level and angle of curve,
 received bone grafts, 20 patients having autogenous bone from the
 iliac

crest and the other 20 having donor bone from a bone bank. Both
 groups had
 otherwise identical posterior fusions and Harrington
 instrumentation.
 There was no difference between the two groups in a blind,
 radiographic
 assessment of bone graft mass at six months, nor in maintenance of
 the
 curve correction over the same period. No major operative
 complications
 nor failures of instrumentation were encountered. There was,
 however, a
 marked reduction in operative time and blood loss in the patients
 receiving donor bone and also a much lower incidence of late
 symptoms
 relating to the operative sites. We conclude that, even in the
 presence of
 adequate iliac crest, the use of bank bone is superior for grafting in
 idiopathic ***scoliosis*** surgery.

L29 ANSWER 17 OF 18 MEDLINE
 AN 86162536 MEDLINE
 DN 86162536
 TI Instrumentation of the lumbar spine. An overview.
 AU Bradford D S
 SO CLINICAL ORTHOPAEDICS AND RELATED RESEARCH,
 (1986 Feb) (203) 209-18.
 Journal code: DFY, ISSN: 0009-921X
 CY United States
 DT Journal Article, (JOURNAL ARTICLE)
 LA English
 FS Abridged Index Medicus Journals, Priority Journals
 EM 198607
 AB The use of any implant system to promote arthrodesis of any
 segment of the
 spine is only as good as the technique of surgical arthrodesis. The
 success of the implant depends, in short, on the success of the
 arthrodesis. A successful arthrodesis depends on meticulous
 soft-tissue
 debridement, decontamination, and copious iliac bone grafting or
 allograft bone grafting if autogenous graft is deficient. If
 the
 anterior approach is used, complete and thorough debridement of
 the
 intervertebral disc and cartilaginous end-plates with meticulous
 bone
 grafting of the interspace is essential for a successful fusion. A
 pseudarthrosis in the presence of an implant will eventually lead to
 implant failure. In implants placed anteriorly, this may lead to
 severe
 consequences and complications. If implants are used anteriorly and
 anterior arthrodesis is not achieved, a posterior spinal fusion should
 be
 carried out. All implants used anteriorly should be placed laterally
 away
 from great vessels, particularly the femoral artery. If separation
 from

the vessels and the implant is not possible, the implant should either be removed or the vessels should be protected with a Dacron graft placed over any protruding metal.

L29 ANSWER 18 OF 18 MEDLINE
AN 84045053 MEDLINE
DN 84045053

TI Vertebral body replacement with femoral neck ***allograft***
and

vascularized rib strut graft. A technique for treating post-traumatic kyphosis with neurologic deficit.

AU McBride G G; Bradford D S
SO SPINE. (1983 May-Jun) 8 (4) 406-15.
Journal code: UXX ISSN: 0362-2436.

CY United States

DT Journal; Article; (JOURNAL ARTICLE)

LA English
FS Priority Journals
EM 198402

AB A technique using a vascularized rib pedicle graft and femoral neck

allograft is presented as a new method of anterior spine fusion in

the treatment of symptomatic post-traumatic kyphosis. The cases of six

patients are reviewed who were treated surgically from seven months to 24

years following their initial injury. Substantial neurologic improvement

was achieved in four patients with incomplete neurologic deficits when the

procedure was combined with an anterior spine decompression. Two patients,

one who was neurologically normal and one with complete paraplegia and L-1

pseudarthrosis were relieved of chronic back and radicular pain following

this procedure. At the time of followup, complete anterior spine decompression was verified by lateral plainography or computerized

axial tomography. All patients were found to have solid anterior spine fusions

with a 63% mean improvement in preoperative kyphosis. Early and rapid

incorporation of bone grafts had been demonstrated, thus requiring shorter

external immobilization periods for the patients.

=> s intervertebral disc cell#ab/bi

14933 INTERVERTERBAL/BI
26941 DISC/BI
1872652 CELL#BI
5401617 AB/FA

22 INTERVERTERBAL DISC CELL#AB
(INTERVERTERBAL(W)DISC(W)CELL#Y)BI (L)

AB/FA)
14933 INTERVERTERBAL/BI
26941 DISC/BI

1872652 CELL#BI

24 INTERVERTERBAL DISC CELL#BI
(INTERVERTERBAL(W)DISC(W)CELL#Y)BI

L30 24 INTERVERTERBAL DISC CELL#AB/BI

=> s l30 and (transplant? or implant? or allograft?)ab/bi

281209 TRANSPLANT#BI

5401617 AB/FA

93564 TRANSPLANT#AB
(TRANSPLANT#BI (L) AB/FA)

281209 TRANSPLANT#BI

129989 IMPLANT#BI

5401617 AB/FA

84121 IMPLANT#AB
(IMPLANT#BI (L) AB/FA)

129989 IMPLANT#BI

23710 ALLOGRAFT#BI

5401617 AB/FA

16456 ALLOGRAFT#AB
(ALLOGRAFT#BI (L) AB/FA)

23710 ALLOGRAFT#BI

L31 0 L30 AND (TRANSPLANT? OR IMPLANT? OR
ALLOGRAFT?)AB/BI

=> file medline embase biosis inpadoc caplus

=> s l30

2 FILES SEARCHED

'AB' IS NOT A VALID FIELD CODE
L32 83 L30

=> dup rem l32

PROCESSING COMPLETED FOR L32

L33 36 DUP REM L32 (47 DUPLICATES REMOVED)

=> d l- bib ab

YOU HAVE REQUESTED DATA FROM 36 ANSWERS.
CONTINUE? Y(N)Y

L33 ANSWER 1 OF 36 INPADOC COPYRIGHT 2000 EPO

LEVEL 1

AN 132171799 INPADOC ED 20000801 EW 200030 UP
20000801 UW 200030

TI METHOD FOR PRODUCING HUMAN

INTERVERTERBAL **DISC***
CELLS

IN HANLEY, JR, EDWARD NATHANIEL, GRUBER, HELEN
ELIZABETH
INS HANLEY JR EDWARD NATHANIEL, GRUBER HELEN
ELIZABETH

INA US: US

PA CHARLOTTE-MECKLENBURG HOSPITAL AUTHORITY

PAS CHARLOTTE-MECKLENBURG HOSPITAL

PAA US

DT Patent

PI USA UNITED STATES PATENT

PI US 6080579 A 20000627

AI US 1997-979674 A 19971126

PRAI US 1997-979674 A 19971126

AB There is provided a method for growing human intervertebral

cells. Disc

tissue is surgically removed from a normal disc of a patient, the

cells

expanded by feeding with a cell stimulant such as a growth factor,

or a cytokine or a bioactive agent to form monolayer primary cell

cultures on

a plastic mesh such as a nylon mesh. In the case of a growth factor,

fetal bovine serum is preferred as it improves cell proliferation and

production of appropriate extracellular matrix components. In

another

aspect of this invention, the monolayer primary cell cultures are

seeded

in alginate or agarose and fed again with the cell stimulant until

three-dimensional cell cultures are formed. The cells are recovered

from

the alginate or agarose or from monolayer cultures.

Re-implantation is

carried out using bioresorbable carriers or cell suspensions.

L33 ANSWER 2 OF 36 MEDLINE DUPLICATE

1 AN 2000389628 MEDLINE
DN 20309886

TI ***Intervertebral*** **disc*** **cell*** death is
dependent

on the magnitude and duration of spinal loading

AU Lutz J C; Chin J R

CS Orthopaedic Bioengineering Laboratory, Department of
Orthopaedic Surgery,

University of California, San Francisco 94143-0514, USA.

jlutz@itsa.ucsf.edu

NC AK-46173 (NIAMS)

SO SPINE. (2000 Jun 15) 25 (12) 1477-85

Journal code: UXX ISSN: 0362-2436.

CY United States

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 200010

EW 20001002

AB STUDY DESIGN: An in vivo study of the toxic consequences of
static

compressive stress on the intervertebral disc. OBJECTIVES: To determine whether disc cell death is correlated with the magnitude and duration of spinal compressive loading. SUMMARY OF BACKGROUND DATA: Static compression in vivo has been demonstrated to induce cell death. Cell death, in turn, has been associated with disc degeneration in humans. There are currently no tolerance criteria for the intervertebral disc that combine both biomechanical and biologic factors, although both have been implicated in cases of accelerated degeneration. METHODS: Mouse tail discs were loaded in vivo with an external compression device. Compressive stress was applied at one of two magnitudes (0.4 and 0.8 MPa) for 7 days, and at one additional magnitude (1.3 MPa) for 1, 3, and 7 days. Midsagittal sections of the discs were stained for apoptosis using the TdT-dUTP terminal nick-end labeling (TUNEL) reaction. Quantal analysis was used to correlate the extent of cell death to the magnitude and duration of loading. RESULTS: The probit transformation of the percentage of dying cells was proportional to the sum of the logarithmic transformations of the compressive stress and the time of loading. CONCLUSIONS: The results of this study demonstrate the feasibility of developing a quantitative correlation between spinal loading and disc degeneration. Such a correlation may be coupled in the future to existing engineering models that predict spinal loading in response to physical exposures and lead to improved definition of the bounds of healthy and unhealthy spinal loading and ultimately, refined guidelines for low back safety.

L33 ANSWER 3 OF 36 EMBASE COPYRIGHT 2000 ELSEVIER SCI. B.V.
AN 2000263727 EMBASE
TI The micromechanical environment of ***intervertebral***
disc
cells Effect of matrix anisotropy and cell geometry predicted by a linear model.
AU Baer A.E.; Setton L.A.
CS A.E. Baer, Department of Biomedical Engineering, Duke University, Durham, NC 27708, United States
SO Journal of Biomechanical Engineering, (2000) 122/3 (245-251).
Ref: 54
ISSN: 0148-0731 CODEN: JBENDY
CY United States

DT Journal Article
FS 027 Biophysics, Bioengineering and Medical Instrumentation
LA English
SL English
AB Cells of the intervertebral disc exhibit spatial variations in phenotype and morphology that may be related to differences in their local mechanical environments. In this study, the stresses, strains, and dilatations in and around cells of the intervertebral disc were studied with an analytical model of the cell as a mechanical inclusion embedded in a transversely isotropic matrix. In response to tensile loading of the matrix, the local mechanical environment of the cell differed among the anatomic regions of the disc and was strongly influenced by changes in both matrix anisotropy and parameters of cell geometry. The results of this study suggest that the local cellular mechanical environment may play a role in determining both cell morphology in situ and the inhomogeneous response to mechanical loading observed in cells of the disc.

L33 ANSWER 4 OF 36 MEDLINE DUPLICATE
AN 2000149740 MEDLINE
DN 20149740
TI Changes with age in proteoglycan synthesis in cells cultured in vitro from the inner and outer rabbit annulus fibrosus. Responses to interleukin-1 and interleukin-1 receptor antagonist protein.
AU Maeda S.; Kohkubo S
CS Department of Orthopaedic Surgery, Tohoku University, School of Medicine, Sendai, Japan. s-maeda@mail.cc.tohoku.ac.jp
SO SPINE, (2000 Jan 15) 25 (2) 166-9.
Journal code: UXX. ISSN: 0362-2436.
CY United States
DT Journal Article (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 200006
EW 20000603
AB STUDY DESIGN: Proteoglycan synthesis was examined in cells isolated from the inner and outer annulus fibrosus of young and old rabbits. Their responses to interleukin-1 alpha and interleukin-1 receptor antagonist protein were investigated. OBJECTIVES: To evaluate the age-related changes and the anatomically related differences in the function of ***intervertebral*** ***disc*** ***cells***
SUMMARY OF BACKGROUND DATA: Proteoglycan content in the human

intervertebral disc decreases with age. Age-related changes in ***intervertebral*** ***disc*** ***cell*** function, however, have not been fully investigated. METHODS: Japanese white rabbits aged 2 months (young group) and 3 years (old group) were used. The inner and outer layer of the annulus fibrosus were separated. The proteoglycan synthesis and release were measured in cells cultured with or without human recombinant interleukin-1 alpha and interleukin-1 receptor antagonist protein. RESULTS: The proteoglycan synthesis significantly decreased and the release rate significantly increased in the old rabbits, compared with the young ones. In the inner annulus, the inhibition of proteoglycan synthesis due to interleukin-1 alpha was greater in the old rabbits than in the young ones. In the old rabbits, interleukin-1-induced inhibition was more pronounced in the inner annulus than in the outer annulus. Interleukin-1 receptor antagonist protein suppressed inhibition of proteoglycan synthesis by interleukin-1 alpha in the two layers in both age groups. CONCLUSIONS: Both the decline in proteoglycan synthesis and the increased cell sensitivity to interleukin-1 alpha with age may contribute to the degradation of discs. The increase in cell response to interleukin-1 alpha in the inner annulus of rabbits may explain why the inner annulus and nucleus pulposus degrade earlier than the outer annulus in human discs. Interleukin-1 receptor antagonist protein could be useful in inhibiting the degradation of the disc.

L33 ANSWER 5 OF 36 CAPLUS COPYRIGHT 2000 ACS
AN 2000.604181 CAPLUS
TI Optimization of 5-(and-6)-carboxyfluorescein diacetate succinimidyl ester for labeling human ***intervertebral*** ***disc***
cells
in vitro
AU Gruber, Helen E.; Leslie, Kelly P.; Ingram, Jane A.; Hanley, Edward N., Jr.
CS Orthopaedic Research Biology, Carolinas Medical Center, Charlotte, NC, 28232, USA
SO Biotech Histochem, (2000) 75/3, 118-123
CODEN: BIHFUJ. ISSN: 1052-0295
PB Lippincott Williams & Wilkins
DT Journal
LA English

AB We have assessed the utility of an intracellular fluorochrome, 5-(and-6)-carboxyfluorescein diacetate succinimidyl ester (CFSE), as a tracking label for human intervertebral disk cells in vitro. Although .mu.M provides adequate intracellular labeling for whole cell fluorescent microscopic identification of labeled cells, 20 .mu.M was preferable for immunocytochem. localization of paraffin embedded labeled cells. Electron dense vesicles are seen at the ultrastructural level in labeled cells. Discrete vesicular labeling can also be obsd. in whole cell mounts viewed with fluorescence microscopy. Whole cells retain good label for 6 wk. CFSE labeling is relatively easy, nontoxic to cells and nonradioactive. Initial optimization of dose with specific cells types is recommended when confirmation of pos. immunocytochem. is needed for tissue engineering studies.

L33 ANSWER 6 OF 36 MEDLINE DUPLICATE
3
AN 2000305619 MEDLINE
DN 20305619
TI Regulation of intracellular pH by bovine ***intervetrenal***
disc ***cells***
AU Razaq S.; Urban J.P.; Wilkins R.J
CS University Laboratory of Physiology, Parks Road, Oxford, OX1 3PT, UK.
SO CELLULAR PHYSIOLOGY AND BIOCHEMISTRY. (2000) 10(1-2) 109-115.
Journal code: C2F. ISSN: 1015-8987.
CY Switzerland
DT Journal; Article. (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 200009
EW 20000904
AB Extracellular acidity is an important determinant of intervertebral disc matrix turnover, possibly exerting effects through changes of intracellular pH (pH_i). There is, however, little information concerning the ways in which these cells regulate their pH_i. Fluorimetric techniques have been used in the present study to measure pH_i in isolated ***intervetrenal*** ***disc*** ***cells***, and to characterise the membrane transport pathways by which it is regulated. Nucleus pulposus cells were obtained from bovine intervertebral discs by standard enzymatic digestion techniques, and loaded with the pH-sensitive fluorophore

BCECF. Resting pH_i was approximately 6.7 for cells suspended in either HEPES buffered (HBS) or CO₂/HCO₃-buffered (BBS) media. Intrinsic buffering capacity was approximately 19 mM pH unit⁻¹ in HBS and was increased when cells were suspended in BBS. A combination of ion substitution and inhibitor studies for cells at steady-state pH or acidified by exposure to NH₄Cl revealed that in HBS Na⁺ x H⁺ exchange and an H⁺-ATPase extrude acid from these cells. Only one of these two systems, the Na⁺ x H⁺ exchanger, exhibited a sensitivity to pH_i, identifying it as the regulator of pH_i under these conditions. In BBS, an additional pathway which was dependent on extracellular Na⁺, extracellular HCO₃⁻ and intracellular Cl⁻ was detected. These properties are consistent with the four ion HCO₃⁻-dependent transporter, although the cation-rich, anion-poor extracellular matrix of the intervertebral disc means that such a pathway has only a marginal role in disc cell pH_i regulation.

L33 ANSWER 7 OF 36 EMBASE COPYRIGHT 2000 ELSEVIER SCI. B.V.
AN 2000261819 EMBASE
TI Regulation of intracellular pH by bovine ***intervetrenal***
disc ***cells***
AU Razaq S.; Urban J.P.G.; Wilkins R.J.
CS Dr. R.J. Wilkins, University Laboratory of Physiology, Parks Road, Oxford OX1 3PT, United Kingdom. robert.wilkins@physiol.ox.ac.uk
SO Cellular Physiology and Biochemistry. (2000) 10(3) 109-115.
Ref: 27
ISSN: 1015-8987 CODEN: CEPBEW
CY Switzerland
DT Journal; Article
FS 002 Physiology
LA English
SL English
AB Extracellular acidity is an important determinant of intervertebral disc matrix turnover, possibly exerting effects through changes of intracellular pH (pH_i). There is, however, little information concerning the ways in which these cells regulate their pH_i. Fluorimetric techniques have been used in the present study to measure pH_i in isolated ***intervetrenal*** ***disc*** ***cells***, and to characterise the membrane transport pathways by which it is regulated.

Nucleus pulposus cells were obtained from bovine intervertebral discs by standard enzymatic digestion techniques, and loaded with the pH-sensitive fluorophore BCECF. Resting pH_i was approximately 6.7 for cells suspended in either HEPES-buffered (HBS) or CO₂/HCO₃-buffered (BBS) media. Intrinsic buffering capacity was approximately 19 mM pH unit⁻¹ in HBS and was increased when cells were suspended in BBS. A combination of ion substitution and inhibitor studies for cells at steady-state pH_i or acidified by exposure to NH₄Cl revealed that in HBS Na⁺ x H⁺ exchange and an H⁺-ATPase extrude acid from these cells. Only one of these two systems, the Na⁺ x H⁺ exchanger, exhibited a sensitivity to pH_i, identifying it as the regulator of pH_i under these conditions. In BBS, an additional pathway which was dependent on extracellular Na⁺, extracellular HCO₃⁻ and intracellular Cl⁻ was detected. These properties are consistent with the four ion HCO₃⁻-dependent transporter, although the cation-rich, anion-poor extracellular matrix of the intervertebral disc means that such a pathway has only a marginal role in disc cell pH_i regulation. Copyright (C) 2000 S. Karger AG, Basel.

L33 ANSWER 8 OF 36 INPADOC COPYRIGHT 2000 ERO LEVEL 1
AN 50459253 INPADOC EW 199925 UP 19991109 UW 199944
TI METHOD FOR PRODUCING HUMAN ***INTERVERTERBAL*** ***DISC***
CELLS
IN HANLEY, EDWARD, NATHANIEL, JR.; GRUBER, ELIZABETH, HELEN
INS HANLEY EDWARD NATHANIEL JR, GRUBER ELIZABETH HELEN
INA US; US
PA CHARLOTTE-MECHLENBURG HOSPITAL AUTHORITY; HANLEY, EDWARD, NATHANIEL, JR.; GRUBER, ELIZABETH, HELEN
GRUBER, ELIZABETH, HELEN
PAS CHARLOTTE MECHLENBURG HOSPITAL; HANLEY EDWARD NATHANIEL, JR; GRUBER ELIZABETH HELEN
PAA US; US; US
TL English, French
LA English
DT Patent
PIT WOAI PUBL OF THE INT. APPL. WITH INT. SEARCH REPORT

P1 WO 9927077 A1 19990603
DS RW GH GM KE LS MW SD SZ UG ZW AM AZ BY KG KZ
MD RU TJ TM AT BE CH CY DE
DK ES FI FR GB GR IE IT LU MC NL PT SE BF BJ CF CG
CI OM GA GN GW ML
MR NE SN TD TG
W AL AM AT AU AZ BA BB BG BR BY CA CH CN CU
CZ DE DK DJ EE EE
ES FI FR GB GE GH GM HR HU ID IL IS JP KE KG KP KR
KZ LC LK LR LS LT
LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD
SE SG SI SK SL TJ TM
TR TT UA UG US UZ VN YU ZW
A1 WO 1998-US25137 A 19981124
PRAI US 1997-979674 A 19971126
OSDW 99-385212
AB There is provided a method for growing human intervertebral
cells. Disc
tissue is surgically removed from a normal disc of a patient, the
cells
expanded by feeding with a cell stimulant such as a growth factor,
or a
cytokine or a bioactive agent to form monolayer primary cell
cultures on
a plastic mesh such as a nylon mesh. In the case of a growth factor,
fetal bovine serum is preferred as it improves cell proliferation and
production of appropriate extracellular matrix components. In
another
aspect of this invention, the monolayer primary cell cultures are
seeded
in alginate or agarose and fed again with the cell stimulant until
three-dimensional cell cultures are formed. The cells are recovered
from
the alginate or agarose or from monolayer cultures.
Re-implantation is
carried out using bioresorbable carriers or cell suspensions.
L33 ANSWER 9 OF 36 INPADOC COPYRIGHT 2000 EPO
LEVEL 1
AN 113020209 INPADOC ED 19990916 EW 199936 UP
19990916 UW 199936
TI METHOD FOR PRODUCING HUMAN
INTERVERTERBAL **DISC***
CELLS
IN EDWARD NATHANIEL HANLEY JR., ELIZABETH HELEN
GRUBER
INS HANLEY EDWARD NATHANIEL JR. GRUBER
ELIZABETH HELEN
PA CHARLOTTE-MECHLENBURG HOSPITAL AUTHORITY
PAS CHARLOTTE-MECHLENBURG HOSPITAL
DT Patent
PIT AUAI COMP. SPEC. OPEN TO PUB. INSP.
PI AU 9916045 A1 19990615
A1 AU 1999-16045 A 19981124
PRAI US 1997-979674 A 19971126
WO 1998-US25137 W 19981124

L33 ANSWER 10 OF 36 MEDLINE DUPLICATE
4
AN 2000091755 MEDLINE
DN 20091755
TI Viscoelastic properties of ***intervertebral*** **disc***
cells. Identification of two biomechanically distinct cell
populations.
AU Guilak F., Ting-Bell H.P., Baer A.E., Trickey W.R., Erickson G
R., Setton L.A
CS Department of Surgery, Duke University Medical Center,
Durham, North
Carolina, USA
NC AR43876 (NIAMS)
AG15768 (NIA)
SO SPINE, (1999 Dec 1) 24 (23) 2475-83.
Journal code: UXX. ISSN: 0362-2436.
CY United States
DT Journal, Article (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 200004
EW 20000403
AB STUDY DESIGN: A combined experimental and theoretical
biomechanical study
to quantify the mechanical properties of living cells of the porcine
intervertebral disc. OBJECTIVES: To quantify zonal variations in
the
mechanical properties and morphology of cells isolated from the
intervertebral disc. SUMMARY OF BACKGROUND DATA:
Cellular response to
mechanical stimuli is influenced by the mechanical properties of
cells and
of the extracellular matrix. Significant zonal variations in
intervertebral disc matrix properties have been reported. No
information
is currently available on the corresponding regional variations in the
mechanical properties of ***intervertebral*** **disc***
cells. despite evidence of significant differences in
cellular
phenotype and biologic response to loading. METHODS: The
microscopic
aspiration test was used in combination with a three-parameter
viscoelastic solid model to measure the mechanical properties of
cells
isolated from the annulus fibrosus, transition zone, and nucleus
pulpus.
RESULTS: ***Intervertebral*** **disc*** **cells***
exhibited
viscoelastic solid behaviors. Highly significant differences were
observed
in the morphology, cytoskeletal arrangement, and biomechanical
properties
of the nucleus pulposus cells as compared with annulus fibrosus or
transition zone cells. Cells of the nucleus pulposus were
approximately
three times stiffer and significantly more viscous than cells of the

annulus fibrosus or transition zone. CONCLUSIONS: The findings
of this
study provide new evidence for the existence of two
biomechanically
distinct cell populations in the intervertebral disc. These
differences in
mechanical behavior may be related to observed differences in the
cytoskeletal architecture between these cells, and may further play
an
important role in the development, maintenance, and degeneration
of the
intervertebral disc.
L33 ANSWER 11 OF 36 MEDLINE DUPLICATE
5
AN 1999386018 MEDLINE
DN 99386018
TI The effect of hydrostatic pressure on intervertebral disc
metabolism.
AU Hutton W.C., Elmer W.A., Boden S.D., Hyon S., Tomlinson Y.,
Tomlinson K., Hair G.A
CS Department of Orthopaedics, Emory University School of
Medicine, Atlanta,
Georgia, USA.
SO SPINE, (1999 Aug 1) 24 (15) 1507-15.
Journal code: UXX. ISSN: 0362-2436.
CY United States
DT Journal, Article (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199912
EW 19991201
AB STUDY DESIGN: By the use of pressure vessels, hydrostatic
pressure was
applied to ***intervertebral*** **disc*** **cells***
cultured in an alginate. OBJECTIVE: To test the hypothesis that
hydrostatic pressure directly affects the synthesis of collagen and
proteoglycan by the ***intervertebral*** **disc***
cells.
SUMMARY OF BACKGROUND DATA: The influence of
compression (both
hydrostatic and mechanical) on chondrocyte metabolism was
examined in a
number of earlier studies. However, in most of these studies,
articular
cartilage, not intervertebral disc, was used, and in none of these was
hydrostatic pressure applied to ***intervertebral***
disc
cells. cultured in alginate. METHODS: Fresh cells were
harvested
from the lumbar intervertebral discs of dogs. Before their
suspension in
an alginate gel system, the cells were plated and expanded until
they
reached confluence. Then, by use of the alginate gel system, the
cells
were exposed (for up to 9 days) to specific values of hydrostatic

pressure inside two stainless steel pressure vessels. One vessel was kept at 1 MPa and the other at atmospheric pressure. The effects of 1 MPa were compared against atmospheric pressure by measuring the incorporation of [3H]-proline and [35S]-sulfate into collagen and proteoglycans, respectively, for the annulus cells and nucleus cells separately, and by determining whether this incorporation was reflected by changes in the levels of mRNA for aggrecan and Types I and II collagen.

RESULTS: Comparisons with atmospheric pressure yielded the following findings: 1) In the incorporation studies, the nucleus and annulus cells exhibited differential response to a hydrostatic pressure of 1 MPa. Collagen and proteoglycan syntheses were stimulated in the nucleus cells and inhibited in the annulus cells. 2) There was no significant increase in cell proliferation, as measured by DNA content, at 1 MPa for either the annulus or nucleus cells. 3) The mRNA levels of collagen (Col I A1 and Col 2A1) and aggrecan increased at 1 MPa in both the nucleus and annulus cells.

CONCLUSIONS: Hydrostatic pressure directly affects the synthesis of collagen and proteoglycan by the ***intervertebral*** cells***.

L33 ANSWER 12 OF 36 MEDLINE DUPLICATE
6
AN 1999259487 MEDLINE
DN 99259487
TI Phenotypic characteristics of rabbit ***intervertebral***
disc
cells Comparison with cartilage cells from the same animals.
AU Poiraudeau S, Monteiro J, Annat P, Blandhard O, Revel M, Corvol M T
CS Institut National de la Santé Et de la Recherche Médicale (INSERM) U30,
Hopital Necker-Enfants malades, Université René Descartes, Paris, France.
SO SPINE. (1999 May 1) 24 (9) 837-44.
Journal code: UXK ISSN: 0362-2436.
CY United States
DT Journal Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EN 199909
FIV 19990901
AB STUDY DESIGN: ***intervertebral*** ***disc***
cells were

extracted from the surrounding matrix, and their metabolic activities and phenotypes were studied. OBJECTIVES: To compare the metabolic activities and phenotypes of cell populations extracted from the intervertebral discs of young rabbits with those of articular and growth plate chondrocytes from the same animals. SUMMARY OF BACKGROUND DATA: The phenotype of ***intervertebral*** ***disc*** ***cells*** has been poorly studied and still is debated. METHODS: The intervertebral discs as well as articular and vertebral growth plate cartilage of rabbits were digested enzymatically. The morphology of freshly isolated cells was examined. Their contents of collagen II and X mRNAs were determined by Northern blot analysis, and their sulfation activity by 35S-sulfate incorporation as chondrocytic markers. Cells were cultured at high density or low density and grown in primary culture. The stability of their phenotype was monitored by evaluating the collagen I and II mRNA ratio. The proteoglycans newly synthesized by the cells also were quantified, and their elution profile analyzed on Sepharose 2B columns.

RESULTS: The annulus fibrosus cells were morphologically undistinguishable from articular chondrocytes. The nucleus pulposus contained mainly large vacuolated cells and a few smaller cells. All freshly extracted cells expressed different levels of collagen II mRNA. Annulus fibrosus and nucleus pulposus cells contained, respectively, 22% and 8% of collagen II mRNA compared with that found in articular or growth plate chondrocytes from the same animal. Only growth plate chondrocytes expressed collagen X. When annulus fibrosus cells were incubated for 48 hours at high density, they had collagen II mRNA contents similar to those of articular and growth plate chondrocytes, but synthesized five to six times fewer sulfated proteoglycans. When seeded at low density, annulus fibrosus cells divided more slowly than articular chondrocytes and incorporated four times fewer 35S-sulfate into proteoglycans. Their collagen II mRNA content was 2.75-fold lower than that of chondrocytes, and the procollagen alpha 1(I) alpha 1(I) mRNA ratio was 3.1 for annulus fibrosus cells and 7 for chondrocytes. No collagen X mRNA was detected. When incubated for 48 hours

at high density, the nucleus pulposus giant cells had four times less collagen II mRNA content than cartilage cells but synthesized the same amounts of sulfated proteoglycans. They did not divide during 21 days in culture and still contained collagen II mRNA but no collagen X mRNA.

CONCLUSIONS: Findings showed that ***intervertebral*** ***disc*** ***cells*** all express cartilage-specific matrix proteins with quantitative differences, depending on their anatomic situation. It is suggested that annulus fibrosus cells are chondrocytic cells at a different stage of differentiation than articular and growth plate chondrocytes. The phenotype of nucleus pulposus cells still is unclear. They could be chondrocytic or notochordal. A definitive answer to this important question requires differentiating markers of notochordal cells.

L33 ANSWER 13 OF 36 MEDLINE DUPLICATE
7
AN 1999229267 MEDLINE
DN 99229267
TI The influence of Matrigel or growth factor reduced Matrigel on human ***intervertebral*** ***disc*** ***cell*** growth and proliferation.
AU Desai B J, Gruber H E, Hanley E N Jr
CS Department of Orthopedic Surgery, Carolinas Medical Center, Charlotte, NC, USA.
SO HISTOLOGY AND HISTOPATHOLOGY. (1999 Apr) 14 (2) 359-68.
Journal code: BEN ISSN: 0213-3911.
CY Spain
DT Journal Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EN 19990901
FIV 19990901
AB Matrigel (reconstituted basement membrane extract) is a potent inducer of cell growth and differentiation in vitro. This study examined phenotypic variation and proliferative responses of human annular ***intervertebral*** ***disc*** ***cells*** in vitro in Matrigel and Growth Factor Reduced Matrigel (GFR-Matrigel). Cells from age- and gender-matched control subjects and patients with degenerative disc disease were grown either on the surface of, or suspended within, matrices. Disc cells grew well on top of both matrices with cells spontaneously forming cell projections. Cells grown within either matrix migrated within the gel to form colonies. Increased colony

formation within the matrices was seen with young control and patient cells (p < 0.05). Old and young control and patient cells showed increased proliferation within GFR-Matrigel compared to Matrigel. When grown on the matrix surface, young patient and control donor cells showed increased proliferation on GFR-Matrigel compared to Matrigel. Cellular proliferation was significantly greater inside a 3-dimensional environment than a two-dimensional surface monolayer environment. Disc cells had increased proliferation when grown in or on GFR-Matrigel compared to Matrigel. These studies serve as a baseline for subsequent investigations regarding effects of cytokines on disc cells and increase our knowledge of the influence of extracellular matrices on disc cell proliferation.

L33 ANSWER 14 OF 36 MEDLINE DUPLICATE
8
AN 199164907 MEDLINE
DN 99164907
TI Cyclic mechanical stretch stress increases the growth rate and collagen synthesis of nucleus pulposus cells in vitro.
AU Matsumoto T, Kawakami M, Kuribayashi K, Takenaka T, Tanaka T
CS Department of Orthopaedic Surgery, Wakayama Medical College, Japan.
lae@wakayama-med.ac.jp
SO SPINE. (1999 Feb 15) 24 (4) 315-9.
Journal code: UXX. ISSN: 0362-2436.
CY United States
DT Journal. Article. (JOURNAL ARTICLE)
LA English
FS Priority Journals
EW 19990701
AB STUDY DESIGN: A rabbit model designed to investigate the effects of applied cyclic tensile stress on the cell division rate and the collagen synthesis in the rabbit nucleus pulposus cells in vitro.
OBJECTIVE: To evaluate the effects of mechanical stress on nucleus pulposus cells, thus adding to the understanding of the adaptation of the intervertebral disc to mechanical stress. SUMMARY OF BACKGROUND DATA: ***Intervertebral***
disc
cells in vivo are exposed to a multitude of physical forces during physical motion. Although it is known that in intervertebral disc disease, a common pathway of disc degeneration is mechanical stress on the nucleus pulposus or the annulus fibrosus or both,

the underlying mechanism has been less well defined. METHODS: Nucleus pulposus cells were isolated from 4-week-old Japanese white rabbits. These cells were subjected to the mechanical cyclic stretch stress using a computerized, pressure-operated instrument that physically deformed the cells. The DNA synthesis rate, collagen synthesis rate, and cell cycle progression were measured. RESULTS: Cyclic tensile stretch increased the DNA synthesis rate in nucleus pulposus cells and in the population of cells in the S phase of the cell cycle during 1 to 2 days of subjugation to stress. Cyclic tensile stretch also increased collagenous protein synthesis in nucleus pulposus cells during 1 to 4 days of stress. CONCLUSIONS: Mechanical stress on nucleus pulposus cells promotes the proliferation of cells and alters the properties of ***Intervertebral***
disc
cells. This study may reflect the adaptation of the intervertebral disc to increased motion and stress.

L33 ANSWER 15 OF 36 MEDLINE DUPLICATE
9
AN 1999237024 MEDLINE
DN 99237024
TI Expression of alpha-smooth muscle actin in canine ***Intervertebral***
disc
cells in situ and in collagen-glycosaminoglycan matrices in vitro.
AU Schneider T O, Mueller S M, Shortkroff S, Spector M
CS Department of Orthopaedic Surgery, Brigham and Women's Hospital, Harvard Medical School, Boston 02115, USA
SO JOURNAL OF ORTHOPAEDIC RESEARCH. (1999 Mar) 17 (2) 192-9.
Journal code: JIQ. ISSN: 0736-0266.
CY United States
DT Journal. Article. (JOURNAL ARTICLE)
LA English
FS Priority Journals
EW 19990704
AB The objective of this study was to investigate the presence of a contractile actin isoform, alpha-smooth muscle actin, in annulus fibrosus cells in situ and in two and three-dimensional cultures. Annulus fibrosus cells were isolated from healthy adult dogs, serially passaged, and then injected into porous collagen-glycosaminoglycan copolymers consisting of either type-I or type-II collagen. Alpha-smooth muscle actin was

detected in the cells in tissue samples and in culture by immunohistochemistry. The number of cells and glycosaminoglycan content of the matrices were determined after 1, 7, and 14 days, and the diameters of the specimens were measured every 2 days. Although few annulus fibrosus cells in vivo displayed the presence of the alpha-smooth muscle actin isoform, most cells in two-dimensional culture demonstrated this phenotype. The contractile behavior of these cells was shown by the cell-mediated contraction of type-I collagen-glycosaminoglycan scaffolds after 8 days in culture. Glycosaminoglycan production was not significantly different in the seeded type-I matrices than in the unseeded matrices, whereas the seeded type-II matrices had a significant increase in glycosaminoglycan production between days 1 and 14 compared with the unseeded controls. This is the first report of both the expression of the contractile alpha-smooth muscle actin isoform in ***Intervertebral***
disc
cells and the ability of the cells to contract a collagen matrix. This finding could aid in better understanding the nature of cells in the annulus.

L33 ANSWER 16 OF 36 BIOSIS COPYRIGHT 2000 BIOSIS
AN 1999152891 BIOSIS
DN PREVIEW99900152891
TI Co-localisation of a proteoglycan epitope and type X collagen by human ***Intervertebral***
disc
cells in vitro.
AU Roberts, S. (1), Johnson, E., Garguilo, B., Caterson, B., Kwan, A.
CS (1) Robert Jones Agnes Hunt Orthopaedic Hosp, Oswestry, Shropshire UK
SO Biochemical Society Transactions. (1999) Vol. 27, No. 1, pp. A42.
Meeting Info: 667th Meeting of the Biochemical Society, Leicester, England, UK, September 21-22, 1998
ISSN: 0300-5127
DT Conference
LA English
L33 ANSWER 17 OF 36 MEDLINE DUPLICATE
10
AN 1999071915 MEDLINE
DN 99071915
TI The effect of compressive force applied to the intervertebral disc in

vivo. A study of proteoglycans and collagen.
AU Hutton W C, Tonbake V, Elmer W A, Gentry T M, Tomita K,
Whitesides T E
CS Department of Orthopaedics, Emory University, Atlanta,
Georgia.
william_hutton@emory.org

SO SPINE. (1998 Dec 1) 23 (23) 2524-37.
Journal code: UXK ISSN: 0362-2436.

CY United States

DT Journal: Article. (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199904

EW 19990404

AB STUDY DESIGN: Coil springs were stretched and attached to produce a compressive force across the lumbar intervertebral discs of dogs for up to 27 weeks. OBJECTIVE: To test the hypothesis that a high compressive force applied over a period of time affects the production of proteoglycans and collagen by the ***intervertebral*** ***disc*** ***cells***.

SUMMARY OF BACKGROUND DATA: It is a commonly held belief that high forces applied to the intervertebral disc, and to joints in general, play a role in causing degeneration. METHODS: Pairs of stainless steel coil springs were stretched and attached to produce a compressive force across the lumbar intervertebral discs (L1-L2 and L3-L4) of 16 dogs. Dogs were killed between 13 and 27 weeks after the springs were attached. The discs (L1-L2 and L3-L4) were excised and assessed using immunohistochemical analyses and enzyme-linked immunosorbent assay. T13-L1 and L4-L5 were used as controls. RESULTS: The main result relates to a group effect in the six dogs, assessed using enzyme-linked immunosorbent assay, that were generally at the highest values of force for the greatest number of weeks.

For the nucleus, but not the annulus, Spearman rank correlations revealed a strong correlation between increases in force and force-weeks (force multiplied by number of weeks) and increases in collagen type I accompanied by decreases in proteoglycans, chondroitin sulfate, and collagen type II for both experimental discs (L1-L2 and L3-L4) as compared with corresponding values in the controls (T13-L1 and L4-L5). In other words, as either the force or the force-weeks increased, the

effect on the nucleus became greater. CONCLUSION: A high compressive force applied to the disc over a period of time initiates changes in proteoglycans and collagen.

L33 ANSWER 18 OF 36 BIOSIS COPYRIGHT 2000 BIOSIS
AN 1998:38538 BIOSIS
DN PREV19980038538

TI Characterization of cytoplasm-filled processes in cells of the intervertebral disc.

AU Errington, R. J.; Pausjärvi, K.; White, I. R. F.; Roberts, S.; Urban, J.

P. G. (1)

CS (1) Univ. Lab. Physiol., Oxford Univ., Oxford UK

SO Journal of Anatomy. (April, 1998) Vol. 192, No. 3, pp. 369-378. ISSN: 0021-8782.

DT Article

LA English

AB We examined cells from the nucleus pulposus and annulus fibrosus of adult bovine intervertebral discs, using confocal laser scanning microscopy on living unfixed tissue. These cells were visualised using chloromethyl fluorescein diacetate, a membrane-impermeant fluorescent dye.

The organisation of cells from the outer annulus was also determined using confocal microscopy after fixation and staining the actin-filaments with FITC-phalloidin. We found that cellular processes were a dominant feature of cells from all regions of the disc including the cells of the nucleus pulposus and inner annulus. These processes were also visible in histological sections of disc examined both at the light and electron microscope level, even though cells from the nucleus and inner annulus appeared chondrocyte-like, being rounded and enclosed in a capsule. The function of these processes is at present unknown. We suggest that they may serve to sense mechanical strain.

L33 ANSWER 19 OF 36 BIOSIS COPYRIGHT 2000 BIOSIS
AN 1998:19979 BIOSIS
DN PREV19980019979

TI ***Intervertebral*** ***disc*** ***cells*** can express monocyte-macrophage specific antigens.

AU Julio, S. F. (1); Rand, N.; Floman, Y.; Spengler, D. N.

CS (1) Vanderbilt Univ. Med. Center, Nashville, TN USA

SO FASEB Journal. (March 17, 1998) Vol. 12, No. 4, pp. A276

Meeting Info: Annual Meeting of the Professional Research Scientists on Experimental Biology 98, Part 1 San Francisco, California, USA

April

18-22, 1998 Federation of American Societies for Experimental Biology

ISSN: 0892-6638.

DT Conference

LA English

L33 ANSWER 20 OF 36 MEDLINE
II
AN 1998:368977 MEDLINE
DN 98368977

TI Variation with age in the pattern of type X collagen expression in normal and scoliotic human intervertebral discs.

AU Aigner T, Gred-etter K R, Fairbank J C, von der Mark K, Urban J P

CS Department of Pathology, Friedrich-Alexander-University of Erlangen.

Nürnberg, FRG.

SO CALCIFIED TISSUE INTERNATIONAL. (1998 Sep) 63 (3) 263-8.

Journal code: CGH ISSN: 0171-967X.

CY United States

DT Journal: Article. (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 19990104

EW 19990104

AB The distribution and expression of type X collagen, a calcium-binding collagen, which is a marker of hypertrophic chondrocytes and thought to be involved in cartilage calcification, was examined in situ in nondegenerate (grade I or II) human discs taken at autopsy over a wide age range (fetal->80 years) and also in scoliotic discs removed at surgery. In the fetal vertebral column, type X collagen was strongly expressed in the hypertrophic chondrocytes of the endplate, but was not seen in other areas. In the cartilaginous endplate of adults, it was found over the whole age range examined, with intensity increasing with age. In the disc matrix itself, type X collagen was demonstrated around individual cells from all individuals older than 50 years, but not in any fetal or autopsy disc from individuals younger than 40 years. In scoliotic discs, however, focal type X collagen expression was seen in 3/8 patients younger than 40 years including one 12-year-old. No type X collagen was found in the annulus in any autopsy or scoliotic disc, supporting the idea that cells of the outer annulus are phenotypically distinct from cells of the

inner annulus and the nucleus. Our results demonstrate for the first time that type X collagen is a possible gene product of the ***intervetral***
 disc ***cells*** and a potential biochemical component of the disc matrix. They indicate that with age or in scoliosis, some cells from the inner annulus or nucleus of the disc differentiate to the hypertrophic chondrocyte phenotype. This might be the initiating event for the abnormal calcification described in aged and scoliotic discs in other studies.

L33 ANSWER 21 OF 36 MEDLINE DUPLICATE
 12 AN 1998093692 MEDLINE
 DN 98093692
 TT Metabolism of the extracellular matrix formed by ***intervetral***
 disc ***cells*** cultured in alginate.
 AU Chiba K, Andersson G B, Masuda K, Thonar E J
 CS Department of Orthopedic Surgery, Rush-Presbyterian-St. Luke's Medical Center, Chicago, Illinois, USA.
 NC AG-04736 (NIA)
 2-P50-AR 39239 (NIAMS)
 SO SPINE. (1997 Dec 15) 22 (24) 2885-93.
 Journal code: UXK. ISSN: 0362-2436.
 CY United States
 DT Journal Article: (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 199804
 EV 19980402
 AB STUDY DESIGN: Cells from normal rabbit nucleus pulposus (NP) and annulus fibrosus (AF) were cultured in alginate beads for as long as 14 days to allow them to reform a matrix made up of two compartments: the cell-associated matrix (CM) and further removed matrix (FRM). At different time points, the CM and FRM made by each cell population were analyzed using histologic, biochemical, and immunologic assays.
 OBJECTIVES: To study the metabolism of normal rabbit NP and AF cells in alginate by characterizing the CM and FRM formed by each cell population, and to identify metabolic properties that may shed light on mechanisms at play in disc degeneration. SUMMARY OF BACKGROUND DATA: Little is known about the metabolism of ***intervetral*** ***disc*** ***cells*** in

part because of the lack of microculture systems appropriate for the study of these cells in vitro. In recent studies from our laboratories, it was suggested that articular chondrocytes cultured in alginate beads remain phenotypically stable and reform a matrix similar to the one they populate in vivo. This culture system appears ideally suited for the study of intervertebral cells available only in limited numbers. METHODS: Rabbit NP and AF cells released from the matrix by sequential enzyme digestion were encapsulated in alginate beads (20,000 cells/bead) and cultured for as long as 14 days. At selected time points, beads were solubilized with calcium chelating agents, and the CM and FRM were isolated. The rate of 35S-sulfate incorporation into proteoglycans, and the contents of various extracellular matrix molecules (total sulfated proteoglycans, antigenic keratan sulfate, hyaluronan, collagen, and pyridinium crosslinks) were measured. RESULTS: Both NP and AF cells remained phenotypically stable in the alginate gel throughout the culture period and reestablished a matrix composed of CM and FRM compartments. The two cell populations exhibited numerous differences in their metabolic activities in vitro. Nucleus pulposus cells synthesized fewer proteoglycan and collagen molecules and were less effective in incorporating these into the CM than AF cells.
 CONCLUSIONS: ***Intervetral*** ***disc*** ***cells***, especially NP cells, are extremely sluggish in reforming a CM, a protective shell rich in proteoglycans and collagen molecules. This may help explain why damage to the NP often is accompanied by progressive degeneration of the disc in vivo.

L33 ANSWER 22 OF 36 MEDLINE DUPLICATE
 13 AN 9734193 MEDLINE
 DN 9734193
 TT Effects of hydrostatic pressure on matrix synthesis and matrix metalloproteinase production in the human lumbar intervertebral disc.
 AU Handa T, Ishihara H, Oshima H, Otsuda R, Tsuji H, Ohata K
 CS Department of Orthopaedic Surgery, Faculty of Medicine, Toyama Medical and Pharmaceutical University, Japan.
 SO SPINE. (1997 May 15) 22 (10) 1085-91.
 Journal code: UXK. ISSN: 0362-2436

CY United States
 DT Journal Article: (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 199710
 AB STUDY DESIGN: This study is a unique in vitro study on the effects of hydrostatic pressure on human intervertebral disc metabolism.
 OBJECTIVE: To investigate the effects of hydrostatic pressure on matrix synthesis and matrix metalloproteinase production in the human lumbar intervertebral disc. SUMMARY OF BACKGROUND DATA: Mechanical stress and hydrostatic pressures influence proteoglycan and protein synthesis rates in bovine articular cartilage and coccygeal discs. However, the mechanism of matrix synthesis regulation of the intervertebral disc under mechanical stress has not been elucidated. METHODS: Twenty-eight human lumbar intervertebral discs obtained from surgery and from cadavers at autopsy were used. Each tissue fraction was charged with medium in a plastic syringe and placed in a water-filled hydrostatic pressure-control vessel. The hydrostatic pressures applied were 1 (control), 3, and 30 atm (atm = atmospheres) for 2 hours. The proteoglycan and protein synthesis rates were determined by radioisotope incorporation. The production of matrix metalloproteinase-3 and tissue inhibitor of metalloproteinases-1 were measured by a one-step enzyme immunoassay method using monoclonal antibodies.
 RESULTS: Three atm pressure stimulated proteoglycan synthesis rates in the nucleus pulposus and inner annulus (n = 14 in each tissue). Compared with the control group, 30 atm pressure significantly inhibited proteoglycan synthesis in the inner annulus (P = 0.011). In the nucleus pulposus, matrix metalloproteinase-3 production was stimulated at a pressure of 30 atm relative to 3 atm (P = 0.014, n = 16 in each tissue). The highest tissue inhibitor of metalloproteinases-1 production showed highest values at 3 atm pressure in the inner annulus (n = 16 in each tissue).
 CONCLUSION: The results suggest that hydrostatic pressure influences ***intervetral*** ***disc*** ***cell*** metabolism. A physiologic level of hydrostatic pressure (3 atm) may act as an anabolic

factor for stimulation of proteoglycan synthesis and tissue inhibitor of metalloproteinases-1 production. This may be essential for maintaining the matrix of the disc. If the pressure was 30 atm or more or 1 atm or less, a catabolic effect will be predominant, with reduction of proteoglycan synthesis rate and increase of matrix metalloproteinase-3 production.

Abnormal hydrostatic pressure, therefore, may accelerate disc degeneration.

L33 ANSWER 23 OF 36 MEDLINE DUPLICATE

AN 1998018417 MEDLINE

DN 98018417

TI Type-II collagen gene expression is transiently upregulated in experimentally induced degeneration of rabbit intervertebral disc.

AU Takaishi H, Nemoto O, Shioa M, Kikuchi T, Yamada H, Yamagishi M, Yabe Y

CS Department of Orthopaedic Surgery, National Defense Medical College, Keio

University School of Medicine, Tokyo, Japan

SO JOURNAL OF ORTHOPAEDIC RESEARCH, (1997 Jul) 15 (4) 528-38.

Journal code: JIQ, ISSN: 0736-0266.

CY United States

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199801

EW 19980104

AB To clarify phenotypic alterations of ***intervertebral***

disc

cells during the repair process, we cloned partial type-II collagen cDNA from rabbits and analyzed the level of expression of type-II collagen mRNA in disc degeneration. An animal model was created by surgical denudation of rabbit intervertebral discs through an extraperitoneal approach. Eight animals each from an experimental and a control group were killed at 2, 4, 8, or 16 weeks postoperatively, and the disc samples were used for this study. Round chondrocyte-like cells filled the herniated space showed intense signal of type-II collagen mRNA and significant pericellular immunostaining of type-II collagen but no clear staining of type-I collagen. Northern blot analysis revealed that the expression of type-II collagen mRNA of the repair disc cells was transiently increased at 4 weeks postoperatively. The cells were able to change their morphology in response to mechanical stimulation by

surgical denudation and to induce a significant increase in the gene expression of type-II collagen at an early phase of disc degeneration. The present results indicate the transient enhancement of repair activity in the degenerative process of injured fibrocartilage.

L33 ANSWER 24 OF 36 MEDLINE DUPLICATE

AN 97428270 MEDLINE

DN 97428270

TI Human ***intervertebral*** ***disc*** ***cells***

from the annulus: three-dimensional culture in agarose or alginate and responsiveness to TGF-beta1.

AU Gruber H E, Fisher E C Jr, Desai B, Sasey A A, Hoelscher G, Hanley E N Jr

CS Department of Orthopaedic Surgery, Carolinas Medical Center, Charlotte,

North Carolina 28232, USA. hgruber@carolinas.org

SO EXPERIMENTAL CELL RESEARCH, (1997 Aug 25) 235 (1) 13-21.

Journal code: EPB, ISSN: 0014-4827.

CY United States

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals; Cancer Journals

EM 199712

EW 19971201

AB Cell culture procedures were developed for use with surgical and normal control specimens of the annulus of the human ***intervertebral***

disc. ***Cells*** were established in monolayer explant culture and seeded into three-dimensional growth environments of alginate or agarose; under these growth conditions cells assumed a rounded phenotype and formed colonies. A novel method of layering suspensions of cells onto cell well inserts proved technically much easier than the microbead culture method. Immunohistochemistry was utilized to demonstrate in vitro production of the following extracellular matrix components: types I, II, III, and VI collagen, 4-S-chondroitin sulfate, and keratan sulfate. Young and old age- and gender-matched cells grown in the presence of TGF-beta1 showed significant enhancement of proliferation after 4 days of exposure to TGF-beta with a lessened mitogenic response present after 10 days. Molecular studies of proteoglycan gene expression showed that at 4 days young normal cells had increased biglycan, but not decorin, message

levels. Decorin expression was unchanged at Day 4 and decreased or shut off by Day 10. Results support the use of three-dimensional culture systems for in vitro evaluation of human disc cell function and expand our understanding of the in vitro behavior of these cells.

L33 ANSWER 25 OF 36 MEDLINE DUPLICATE

AN 96233205 MEDLINE

DN 96233205

TI The effect of substance P on proliferation and proteoglycan deposition of cells derived from rabbit intervertebral disc.

AU Ashlon I K, Eisenstein S M

CS Centre for Spinal Studies, Robert Jones and Agnes Hunt Orthopaedic Hospital, Oswestry, United Kingdom.

SO SPINE, (1996 Feb 15) 21 (4) 421-6.

Journal code: UXK, ISSN: 0362-2436.

CY United States

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199610

AB STUDY DESIGN: This study is an in vitro investigation of the effects of substance P on ***intervertebral*** ***disc***

cell metabolism. OBJECTIVES: To determine whether the neuropeptide, substance P, affects cells isolated from the intervertebral disc. SUMMARY OF THE BACKGROUND DATA: Nerve fibers containing substance P are present in the annulus fibrosus and may be released from the nerve terminals as in other tissues. Substance P is mitogenic for a variety of immune and connective tissue cells, and a fragment of the peptide affects the metabolism of articular chondrocytes. METHODS: Cells were isolated enzymically from the annulus fibrosus of intervertebral disc of 8-week-old rabbits. The effects of substance P and the C-terminal pentapeptide fragment SP7-11 on cell proliferation and proteoglycan deposition were determined by crystal violet

and Alcian blue staining, respectively. RESULTS: Substance P ((10)⁻¹¹-(10)⁻⁷ mol/l) had a small stimulatory effect on disc cell proliferation. Proteoglycan deposition in the cell layer increased concomitantly. A greater proliferative effect was observed with substance P fragment 7-11 or with the addition of the neutral endopeptidase inhibitor, phosphoramidon. CONCLUSIONS: Substance P has small mitogenic effects on rabbit ***intervertebral*** ***disc***

cells
in vitro. Further investigation is required to establish whether this might have biologic relevance in relation to the maintenance or repair of the intervertebral disc.

L33 ANSWER 26 OF 36 BIOSIS COPYRIGHT 2000 BIOSIS
AN 1997:96748 BIOSIS
DN PREV19979393931

TI Matrigel (MAG) enhances cell proliferation, but not CFU formation in human

intervetrenal ***disc*** ***cells*** (DC.

AU Dcsai, B. J.; Gruber, H. E.; Hanley, E. N., Jr.

CS Dep. Orthop. Surg., Carolinas Med. Cent., Charlotte, NC 28232 USA

SO Molecular Biology of the Cell, (1996) Vol. 7, No. SUPPL., pp. 420A

Meeting Info.: Annual Meeting of the 6th International Congress on Cell

Biology and the 36th American Society for Cell Biology San Francisco,

California, USA December 7-11, 1996

ISSN: 1059-1524.

DT Conference; Abstract; Conference

LA English

L33 ANSWER 27 OF 36 MEDLINE DUPLICATE

AN 96093339 MEDLINE

DN 96093339

TI Distribution of the basic fibroblast growth factor and its receptor gene

expression in normal and degenerated rat intervertebral discs.

AU Negano T.; Yonemitsu K.; Miyamoto S.; Tohyama M.; Ono K.

CS Department of Orthopaedic Surgery, Osaka University Medical School, Japan

SO SPINE, (1995 Sep 15) 20 (18) 1972-8.

Journal code: UXX. ISSN: 0362-2436.

CY United States

DT Journal; Article: (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199605

AB STUDY DESIGN: Using a rat spondylosis model, the distributions of cells

expressing the basic fibroblast growth factor and its receptor were

investigated in normal and degenerated intervertebral discs.

Cell-proliferating activity in degenerated discs was also assessed.

OBJECTIVES: This study was conducted to determine whether

basic fibroblast

growth factor is related to intervertebral disc degeneration.

SUMMARY OF:

BACKGROUND DATA: Basic fibroblast growth factor stimulates

proliferation

and matrix synthesis of cultured ***intervetrenal***

disc

cells METHODS: Immunohistochemistry and in situ

hybridization

histochemistry were conducted to detect cells with basic fibroblast growth

factor-like immunoreactivity and fibroblast growth factor receptor

messenger RNA, respectively. Cell-proliferating activity was

evaluated by

AgNOR staining. RESULTS: In degenerated discs, round

chondrocytes with basic fibroblast growth factor-like immunoreactivity and fibroblast

growth factor receptor messenger RNA are scattered instead of

spindle-shaped

cells in the normal annulus (normal annular cells), which are devoid

of basic fibroblast growth factor-like immunoreactivity and fibroblast

growth

factor receptor messenger RNA. The proliferating activity of these

chondrocytes is suggested to exceed that of normal annular cells.

CONCLUSION: Basic fibroblast growth factor is suggested to

promote

proliferation of chondrocytes in degenerated discs in an autocrine or

paracrine manner. Basic fibroblast growth factor may be related to

intervertebral disc degeneration as a proliferation-stimulating factor

of

chondrocytes that replace normal annular cells during disc

degeneration.

L33 ANSWER 28 OF 36 EMBASE COPYRIGHT 2000

ELSEVIER SCI B.V.

AN 95303637 EMBASE

DN 1995303637

TI IL-1 beta induces nitric oxide production in ***intervetrenal***

disc ***cells*** in vitro.

AU Ashton J.K.; Risley G.L.; Eisenstein S.M.

CS Centre for Spinal Studies, R Jones A Hunt Orthopaedic Hospital, Oswestry,

Salop SY10 7AG, United Kingdom

SO Journal of Orthopaedic Rheumatology, (1995) 8/3 (151-154)

ISSN: 0951-9580 CODEN: JORHE3

CY United Kingdom

DT Journal; Article

FS 029 Clinical Biochemistry

(31) Arthritis and Rheumatism

LA English

SL English

AB Nitric oxide (NO) synthesis is induced in a variety of cells,

including

articular chondrocytes, by the inflammatory mediator interleukin

1 beta.

(IL-1 beta) and may have a role in the activation of the matrix

metalloproteinases which regulate the biosynthesis of cartilaginous

matrix. The factors which control the metabolism of the

intervertebral

disc, the extracellular matrix of which also comprises collagens and

proteoglycans, are not well understood and may also involve NO.

Cells

isolated from the annulus fibrosus of rabbit intervertebral disc and

maintained in culture synthesize low basal levels of NO,

demonstrated as

nitric (< 0.5 nmole per 105 cells per 24 h). Addition of IL-1 beta

(10-1000 U ml-1)

promoted a dose-dependent increase in NO to >

4 nmol per

105 cells per 24 h beginning after a delay of approximately 8 h,

suggesting a de novo synthesis of NO synthase. This increase was

inhibited

by 0.2 mM N(G)-monomethyl-L-arginine, L-NAME, the

competitive inhibitor of

NO synthase from arginine. Dexamethasone is a potent inhibitor of

NO

synthesis in macrophages, however, 1 muM dexamethasone did

not inhibit

NO synthesis in rabbit ***intervetrenal*** ***disc***

cells.

Addition of 10-1000 U ml-1 IL-1 beta resulted in a

15-20%

depletion of proteoglycan from the disc cell layer in 48 h. Although

this

was prevented by dexamethasone, it was reduced but not prevented

by L-NAME

at a concentration which inhibited NO production. This suggests

that the

IL-1 beta-induced decrease in synthesis of the extracellular matrix

of intervertebral disc is mediated only in part by NO.

L33 ANSWER 29 OF 36 MEDLINE DUPLICATE

AN 92364712 MEDLINE

DN 92364712

TI Initial characterization of the metabolism of

intervetrenal

disc ***cells*** encapsulated in microspheres.

AU Maldonado B.A.; Ogema T.R. Jr

CS Department of Orthopaedic Surgery, University of Minnesota,

Minneapolis

55455.

NC AR39255 (NIAMS)

AR32145 (NIAMS)

AR07555 (NIAMS)

SO JOURNAL OF ORTHOPAEDIC RESEARCH, (1992 Sep) 10

(5) 677-90.

Journal code: JIQ. ISSN: 0736-0266.

CY United States

DT Journal; Article: (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199211

AB Adult canine ***intervetrenal*** ***disc***

cells were

isolated with a sequential digestion of pronase and bacterial

collagenase

The nonchondrocyte/strophoid nucleus pulposus exhibits two

populations of

cell: large notochordal cells and smaller chondrocyte-like cells.

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The cells from the transition zone and annulus fibrosus are uniform in size, ranging from 17 to 21 microns. The isolated cells were encapsulated in alginate beads and cultured in Ham's F-12 medium containing 5% heat-inactivated fetal bovine serum. Alginate bead formation requires calcium ions and can be reversed with a suitable chelator, thus releasing viable cells. We observed that 58% of the newly synthesized proteoglycans formed large-molecular-weight aggregates with hyaluronic acid. The proteoglycans contained low amounts of keratan sulfate (KS) (less than 5% of the total glycosaminoglycans synthesized). The chondroitin sulfates (CS) consisted of 51-67% as 6-O-sulfate and 29-39% as 4-O-sulfate, with the remainder (4-10%) present as 4,6-sulfate for all three zones of the disc. The majority of cells synthesized significant amounts of matrix as evidenced by Alcian Blue staining. By immunohistochemical analysis, the matrix contained chondroitin 6-sulfate as demonstrated by monoclonal antibodies to the unsaturated disaccharides remaining on the proteoglycan core after chondroitinase ABC digestion. Keratan sulfate was also present in the majority of the matrices around cells. These results emphasize the similarity of the newly synthesized proteoglycans secreted by cells grown in alginate beads to those synthesized by the neonate disc. These experiments also demonstrate the usefulness of this method as a microculture technique for disc cells.

L33 ANSWER 30 OF 36 MEDLINE DUPLICATE
19
AN 91259345 MEDLINE
DN 91259345
T1 Identification of human intervertebral disc stromelysin and its involvement in matrix degradation.
AU Liu J; Roughley P J; Mott J S
CS Joint Diseases Laboratory, Strikers Hospital for Crippled Children.
Montreal, Quebec, Canada
SO JOURNAL OF ORTHOPAEDIC RESEARCH. (1991 Jul) 9 (4) 568-75.
Journal code: JIQ. ISSN: 0736-0266.
CY United States
DT Journal, Article: (JOURNAL ARTICLE)
LA English
FS Priority Journals

EM 199109
AB Human intervertebral disc when maintained in organ culture released a latent casein-degrading metalloproteinase into the medium in a manner analogous to cultures of human cartilage. This enzyme was demonstrated to be immunologically identical to prostromelysin. It was also found that the amount of procollagenase secreted by both cartilage and disc cells was considerably less than that of prostromelysin. Tissue extraction confirmed that the low level of procollagenase observed was not due to retention of the enzyme within the tissue. Human intervertebral disc link proteins were found to possess the same N-termini as those of their counterparts in human articular cartilage, where it appears that stromelysin is responsible for generating molecular heterogeneity. These results suggest that ***intervertebral*** **disc*** **cells*** are capable of secreting prostromelysin, which can become activated within the extracellular matrix and hence contribute to the age-related and degenerative changes in the disc.

L33 ANSWER 31 OF 36 CAPLUS COPYRIGHT 2000 ACS
AN 1990.624295 CAPLUS
DN 113.224295
T1 Morphological and biochemical studies on cultured ***intervertebral*** **disc*** **cells***. I. With special reference to the effect of chymopapain
AU Yamazaki, Masashi; Moriya, Hideshige; Kishihara, Hiroshi; Watanabe, Tsuneo;
Tsuchida, Toyomitsu
CS Sch. Med., Chiba Univ., Chiba, 280, Japan
SO Chiba Igaku Zasshi (1989), 65(6), 367-72
CODEN: CIZA4Z, ISSN: 0303-5476
DT Journal
LA Japanese
AB Mechanisms of the intervertebral disk nucleus pulposus regeneration after chemonucleolysis with chymopapain were studied in cultured annulus fibrosus (AF) cells and nucleus pulposus (NP) cells derived from rabbit disk. The AF cells consisted mainly of chondrocytes with high cell growth rates and matrix prodn. activity, while most of the NP cells were myofibroblastic cells. Chymopapain inhibited sulfated glycosaminoglycan synthesis in AF and NP cells, but the inhibition was reversible in AF.

cells. AF cells may play a major role in the nucleus pulposus regeneration after chemonucleolysis.

L33 ANSWER 32 OF 36 MEDLINE DUPLICATE
20
AN 89084690 MEDLINE
DN 89084690
T1 The role of interleukin-1 on proteoglycan metabolism of rabbit annulus fibrosus cells cultured in vitro.
AU Shimizu M; Kikuchi T; Yamagishi M; Shimomura Y
CS Department of Orthopaedic Surgery, National Defense Medical College.
Saitama-ken, Japan.
SO SPINE. (1988 Nov) 13 (11) 1284-90.
Journal code: UXK. ISSN: 0362-2436.
CY United States
DT Journal, Article: (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 198904
AB The effects of human recombinant interleukin-1 alpha (IL-1 alpha) on proteoglycan (PG) metabolism of rabbit intervertebral disc were investigated morphologically and biochemically using rabbit annulus fibrosus (AF) cells in culture. AF cells could maintain their differentiated phenotype well in our primary culturing condition. In this situation, IL-1 alpha stimulated the cells and induced marked increase of PG release. Dose dependency of IL-1 alpha on PG release was seen in the concentration range between 5-50 U/ml. Caseinolytic activity produced and secreted into the medium by AF cells was assayed and it was found that IL-1 alpha enhanced the enzyme activities in the medium. The effects of IL-1 alpha on PG and DNA synthesis were also studied. Slight depression was observed in PG synthesis but there was no effect on DNA synthesis. These data suggest that IL-1 alpha may play an important role in PG metabolism of ***intervertebral*** **disc*** **cells*** especially in the catabolic pathway of PG.

L33 ANSWER 33 OF 36 MEDLINE DUPLICATE
21
AN 87206469 MEDLINE
DN 87206469
T1 Postmortem changes in ultrastructures of the mouse intervertebral disc.
AU Higuchi M; Abe K
SO SPINE. (1987 Jan-Feb) 12 (1) 48-52.
Journal code: UXK. ISSN: 0362-2436.

CY United States
DT Journal, Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 198708

AB To elucidate the effects of nutrition and oxygen deficiencies on the

intervetrbal **disc***, ***cell*** components of mouse

intervetrbal discs and their postmortem changes were observed by electron microscopy. The annulus fibrosus could be divided into an inner

and outer region. The main cell components of the annulus fibrosus were

fibroblast-like cells in the outer region and chondrocytes in the inner

region. The nucleus pulposus consisted of massively packed notochordal

cells. The cartilage plates could also be divided into two zones: articular cartilage and growth cartilage containing chondrocytes.

Postmortem degenerative changes proceeded from the peripheral to the

central parts of the intervertebral disc, ie, showing degeneration of first the fibroblast-like cells, next the chondrocytes, and finally, the notochordal cells. The findings suggest that cells situated at the

periphery predominantly depend on aerobic metabolism, whereas the cells

situated more centrally depend on anaerobic metabolism. Furthermore,

postmortem changes of the nucleus pulposus were similar to age-related

changes. The age-related changes or degeneration in the intervertebral

disc appear to be related to deficiencies of nutrition or oxygen caused by

changes in structures of the disc and the surrounding tissues.

L33 ANSWER 34 OF 36 MEDLINE DUPLICATE

AN 82258944 MEDLINE

DN 82258944

T1 Expression of gamma-glutamyl transpeptidase activity in the developing

mouse tooth, intervertebral disc, and hair follicle.

AU Richards W L, Astrup E G

NC CA-22484 (NCI)

CA-07175 (NCI)

CA-17334 (NCI)

SO CANCER RESEARCH, (1982 Oct) 42 (10) 4143-52.

Journal code: CNF ISSN: 0008-5472

CY United States

DT Journal, Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 198212

AB Expression of gamma-glutamyl transpeptidase (GGT) in the

developing mouse

tooth, intervertebral disc, and hair follicle was investigated in terms of

its localization during ontogenic stages and its association or lack of association with cell proliferation (labeled nuclei after

[3H]thymidine injection or metaphase-arrested cells after colchicine injection).

The data demonstrate that (a) GGT expression followed a program of activity

and localization changes that correlated with the progressive emergence of developmental stages and (b) GGT activity in developing tissues

derived either from epithelium (enamel-producing cells and hair follicle cells) or

from mesenchyme (***intervetrbal*** **disc*** **cells***)

was localized only in mitotically quiescent cellular layers or regions associated with the production of specialized tissue products;

however, not all postmitotic regions expressed GGT activity. Although further

research is needed to clarify the role of GGT in normal and neoplastic

tissues, we conclude that increasing evidence from this and other laboratories implicates GGT as a marker of cell differentiation, cell

aging, and/or reduced cell proliferation.

L33 ANSWER 35 OF 36 MEDLINE DUPLICATE

AN 83044820 MEDLINE

DN 83044820

T1 Carbohydrate metabolism and concentration profiles of solutes in the

canine lumbar intervertebral disc.

AU Holm S, Selstam G, Nachemson A

SO ACTA PHYSIOLOGICA SCANDINAVICA, (1982 May) 115

(1) 147-56.

Journal code: IJ4 ISSN: 0001-6772

CY Sweden

DT Journal, Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 198302

AB Utilization of glucose and oxygen by the cells as well as concentration

profiles of solutes were studied in the canine ***intervetrbal***

disc, ***Cell*** metabolism in this avascular tissue, being

predominantly anaerobic, was found to be dependent on oxygen tension (this

being especially pronounced in the region of 0.13-0.4 kPa (-1.3 mmHg) A

high production rate of lactic acid was found in the nucleus

pulposus.

whereas towards the periphery of the annulus fibrosus this rate gradually

decreased. In the centrally located areas of the disc tissue, far away from the blood circulation, the highest concentrations of lactic acid

were found. For the normal disc the energy demands seem to be met as even small

amounts of oxygen account for a large energy source, whereas the cellular

requirements are balanced up predominantly by glucose. In regions with

extremely low oxygen tensions large amounts of glucose are consumed, but

an additional potential energy pool of glycogen seems to be available.

L33 ANSWER 36 OF 36 MEDLINE DUPLICATE

24

AN 78117080 MEDLINE

DN 78117080

T1 Staining of glycosaminoglycans in ***intervetrbal***

disc, ***cells***

AU Butler W F, Pouty I
SO RESEARCH IN VETERINARY SCIENCE, (1977 Nov) 23 (3) 351-5.

Journal code: RVD ISSN: 0034-5288.

CY ENGLAND; United Kingdom

DT Journal, Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 197806

AB Disc material from horse, ox, sheep, pig, dog and cat was stained by the

Alcian-blue-critical electrolyte concentration technique and with the

standard and two-step periodic acid Schiff methods. The effects of pretreatment with hyaluronidase and with chondroitinase was also

evaluated. There appears to be a small increase in total cellular glycosaminoglycan content with age in all species; cellular material

of high molecular weight however only increases in aged animals. The degree

of sulphation of cellular glycosaminoglycans does not vary with age or with position in the disc.

=> s intervertebral disc cell# and autologous/ab,bi

'AB IS NOT A VALID FIELD CODE

3 FILES SEARCHED... L34 0 INTERVETBRAL DISC CELL # AND

AUTOLOGOUS/AB,BI

=> s intervertebral disc and autologous/ab,bi

'AB IS NOT A VALID FIELD CODE
L35 40 INTERVERTEBRAL DISC AND
AUTOLGOCUS/AB,BI

=> dup rem l35

PROCESSING COMPLETED FOR L35
L36 24 DUP REM L35 (16 DUPLICATES REMOVED)

=> d l - bib ab

YOU HAVE REQUESTED DATA FROM 24 ANSWERS -
CONTINUE? Y(N)?y

L36 ANSWER 1 OF 24 MEDLINE DUPLICATE
1

AN 2000232031 MEDLINE
DN 20232031

TI The effect of age on inflammatory responses and nerve root
injuries after

lumbar disc herniation: an experimental study in a canine model.
AU Hasegawa T, An H S, Inafusa A, Mikiawa Y, Watanabe R
CS Department of Orthopaedic Surgery, Kawasaki Medical School,
Okayama,

Japan. hasegawa@med.kawasaki-m.ac.jp
SO SPINE. (2000 Apr 15) 25 (8) 937-40.
Journal code: UXX. ISSN: 0362-2436

CY United States
DT Journal Article; (JOURNAL ARTICLE)

LA English
FS Priority Journals

EM 200008
EW 20000804

AB STUDY DESIGN: An experimental investigation on the effect
of age on
pathologic events surrounding the herniated disc and at the adjacent
nerve

root. OBJECTIVES: To investigate the role of age on the
inflammatory
responses and nerve root damage surrounding a sequestered lumbar
disc

fragment using a dog model. SUMMARY OF BACKGROUND
DATA: Lumbar disc
herniation is manifested in patients by variable clinical findings,
natural history, and resorption phenomena in which the variability

is
particularly noted among patients with different ages. There are no
previous reports on the effect of age on pathologic events induced
by the

herniated disc. METHODS: Six beagle dogs, including two animals
of each
age group of 6, 12, and 24 months (human equivalent ages of 10,
15, and 24

years), were used in this study. The dogs underwent L4-L5, L5-L6,
and
L6-L7 laminotomy and discectomy under general anesthesia. An

autologous ***intervertebral*** ***disc*** from
the tail
was divided into annulus fibrosus and nucleus pulposus fragments.

The
annulus fibrosus and nucleus pulposus fragments were placed in the
anterolateral epidural space of L5-L6 and L6-L7, respectively. The
L4-L5

discectomy site served as a control. Dogs were killed at 12 weeks
after

surgery. The lumbar spine was removed en bloc, and histologic
sections
were prepared consecutively and examined. RESULTS: In the
nucleus pulposus

group at L6-L7, neovascularity, and intensive infiltration of
macrophages,
macrophages, and fibroblasts were observed surrounding the
nucleus

pulposus fragment in the 24-month-old group only. Degenerative
changes of
the nerve root fibers were observed in the 24-month-old group only.

In the
control and annulus fibrosus groups at L4-L5 and L5-L6, there were
no

marked inflammatory reactions in all age groups. The nerve root
fibers
around the annulus fibrosus were normal in all age groups.

CONCLUSIONS:
There is an effect of age on the inflammatory response and nerve
root

injury caused by the herniated disc. The apparent neuroprotective
mechanism in the young animal, and the apparent inflammatory and
resorption changes of the nucleus pulposus fragment in the older
animal

are quite intriguing
L36 ANSWER 2 OF 24 MEDLINE DUPLICATE
2

AN 1999265186 MEDLINE
DN 99265186

TI Effects of basic fibroblast growth factor on spontaneous resorption
of
herniated intervertebral discs: An experimental study in the rabbit.

AU Minamide A, Hashizume H, Yoshida M, Kawakami M, Hayashi
N, Tamaki T
CS Department of Orthopaedic Surgery, Wakayama Medical College,
Japan.
minamide@wakayama-med.ac.jp

SO SPINE. (1999 May 15) 24 (10) 940-5.
Journal code: UXX. ISSN: 0362-2436.

CY United States
DT Journal Article; (JOURNAL ARTICLE)

LA English
FS Priority Journals

EM 199909
EW 19990902

AB STUDY DESIGN: Histologic examination was performed on the
autologous ***intervertebral*** ***disc***

material that
was removed from the intervertebral space at L1-L2 and then
relocated to

the L4 posterior epidural space after the addition of basic fibroblast
growth factor (bFGF) in a rabbit. OBJECTIVES: To evaluate
whether basic

fibroblast growth factor influences the resorption process of the
herniated ***intervertebral*** ***disc*** through the
promotion of

angiogenesis and chemotaxis. SUMMARY OF BACKGROUND
DATA: It has been
reported that newly formed vessels, inflammatory cells, and their
products

may play an important role in the spontaneous resorption process of
herniated intervertebral discs. In a rabbit model that mimics the
sequestration type of ***intervertebral*** ***disc***

herniation,
it has been reported that the ***autologous***
intervertebral

disc material that relocated into the epidural space was
penetrated by newly formed vessels originating from the epidural
fat

tissue. Therefore, it is possible that promotion of angiogenesis may
influence the resorption of herniated intervertebral discs. Basic
fibroblast growth factor is well known as an angiogenesis
stimulation

factor in vivo. METHODS: Thirty-six adult rabbits were divided
into three
groups. The L1-L2 ***intervertebral*** ***disc*** was

partially
incised through a retropneumal approach in each rabbit. The
harvested
disc material, which contained nucleus pulposus and annulus

fibrosus, was
immersed in one of three kinds of solution before relocation into
the
posterior epidural space at L4. In the control group, the harvested

intervertebral ***disc*** was immersed in
physiologic saline
for 2 hours before relocation. In the group receiving 5 micrograms

bFGF,
the disc was immersed in 5 micrograms/mL bFGF for 2 hours
before the
relocation. In the group receiving 20 micrograms bFGF, the disc

was
immersed in 20 micrograms/mL bFGF for 2 hours before the
relocation.
Rabbits of each group were killed for histologic examination 1, 2, 4,

and
8 weeks after surgery. RESULTS: In the bFGF-treated groups,
newly formed
vessels were observed to be in more numerous than those in the

control
group. 1 and 2 weeks after surgery. The number of inflammatory
cells,
including macrophages, lymphocytes, and fibroblasts, also increased
in the

bFGF-treated groups. The period from the surgery to the degradation of the
 intervertebral **disc*** in the bFGF-treated groups was shorter than that in the control group, although the resorption process of the relocated discs was also observed in the control group. The size of relocated intervertebral discs in the bFGF-treated groups decreased at a higher rate than in the control group as time progressed. The rate of decrease in the size of discs in the group treated with 20 micrograms bFGF was more than that in the group treated with 5 micrograms.
 CONCLUSIONS:
 Epidural injection of bFGF facilitated the resorption of the ***intervertebral*** **disc*** relocated to the epidural space.

L36 ANSWER 3 OF 24 MEDLINE
 AN 1999304385 MEDLINE
 DN 99304385
 T1 Disc extension in a Rottweiler dog with caudal cervical spondylomyelopathy after failure of intervertebral distraction/stabilisation.
 AU Murchewsky A M, Richardson J L
 CS Division of Veterinary and Biomedical Sciences, Murdoch University,
 Western Australia.
 SO AUSTRALIAN VETERINARY JOURNAL. (1999 May) 77 (5) 295-7.
 Journal code: 91E. ISSN: 0005-0423.
 CY Australia
 DT Journal Article; (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 199909
 EW 19990903
 AB A Rottweiler dog was presented with an 8 week history of hindlimb ataxia.
 Neurological examination localised the lesion to the cervical spinal cord.
 Myelography demonstrated dynamic compressive lesions at C5-6 and C6-7
 consistent with a diagnosis of caudal cervical spondylomyelopathy. Distraction/stabilisation of both discs was performed using interbody polymethyl methacrylate. Both implants subsequently failed leading to extrusion of the remaining dorsal annulus fibrosus of the C5-6
 intervertebral **disc*** and nonambulatory tetraparesis. A ventral slot combined with distraction/stabilisation using screws and polymethyl methacrylate was performed and resulted in nearly full neurological recovery.

L36 ANSWER 4 OF 24 MEDLINE DUPLICATE
 3
 AN 1998277593 MEDLINE
 DN 98277593
 T1 Monocyte chemoattractant protein-1 in the ***intervertebral*** **disc***. A histologic experimental model.
 AU Kikuchi T, Nakamura T, Ikeda T, Ogata H, Takagi K
 CS Department of Orthopaedic Surgery, Kumamoto University School of Medicine.
 Japan. lano3p@kaiju.medic.kumamoto-u.ac.jp
 SO SPINE. (1998 May 15) 23 (10) 1091-9.
 Journal code: UXK. ISSN: 0362-2436.
 CY United States
 DT Journal Article; (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 199810
 EW 19981002
 AB STUDY DESIGN: Monocyte chemoattractant protein-1 was investigated in an experimental rat model using immunohistochemistry.
 OBJECTIVE: To ascertain the precise mechanism of macrophage recruitment in the early phase of disc resorption. SUMMARY OF BACKGROUND DATA: In previous studies, many investigators reported that disc herniation was resorbed by monocyte phagocytosis. However, how the recruitment of monocytes was triggered is still unknown. METHODS: The ***autologous*** intervertebral discs from tails of Wistar rats were subcutaneously implanted into the abdomen. These discs were obtained on days 2, 3, 7, and 14 after implantation and were used for immunohistochemical study and for quantitative analysis of monocyte chemoattractant protein-1 by sandwich enzyme-linked immunosorbent assay. RESULTS: Monocyte chemoattractant protein-1-positive granulocytes and macrophages were observed surrounding the ***intervertebral*** **disc***, and monocyte chemoattractant protein-1-positive chondrocytes were observed in the nucleus pulposus and the inner annulus fibrosus on day 3. By day 7, monocyte chemoattractant protein-1-positive and TRPM-3-positive macrophages appeared in the granulation tissue, and some of these cells invaded the nucleus pulposus and inner annulus fibrosus. The concentration of monocyte chemoattractant protein-1 was highest on day 3. CONCLUSION: ***intervertebral*** **disc***

chondrocytes have chemoattractive properties and play an active role in the recruitment of monocytes involved in disc resorption.

L36 ANSWER 5 OF 24 MEDLINE DUPLICATE
 4
 AN 1998242054 MEDLINE
 DN 98242054
 T1 Effects of steroid and lipopoly-saccharide on spontaneous resorption of herniated intervertebral discs. An experimental study in the rabbit.
 AU Minamide A, Tamaki T, Hashizume H, Yoshida M, Kawakami M, Hayashi N
 CS Department of Orthopaedic Surgery, Wakayama Medical College, Japan.
 SO SPINE. (1998 Apr 15) 23 (8) 870-6.
 Journal code: UXK. ISSN: 0362-2436.
 CY United States
 DT Journal Article; (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 199808
 EW 19980804
 AB STUDY DESIGN: Histologic examination was performed on autografted ***intervertebral*** **disc*** materials of rabbit models, which were partially incised through a retroperitoneal approach at L1-L2 and grafted within the posterior epidural space at L4. OBJECTIVE: To evaluate whether the resorption process of the herniated ***intervertebral*** **disc*** is influenced and controlled by treatments with medications. SUMMARY OF BACKGROUND DATA: Regarding resorption of herniated intervertebral discs, recent studies of magnetic resonance images and histologic investigations of surgically resected specimens in lumbar disc herniation patients have been reported. It has been shown that inflammatory factors may play an important role in the mechanism of resorption of the herniated ***intervertebral*** **disc***. However, little is known about the origin of newly formed vessels and inflammatory cells detected in herniated disc specimens from patients. In this study, The resorption process of disc material grafted into the epidural space was observed in a rabbit model. METHODS: Thirty-six adult rabbits were used. The L1-L2 ***intervertebral*** **disc*** was partially incised through a retroperitoneal approach. The harvested material, which contains the nucleus pulposus and the annulus

fibrosis were placed into the posterior epidural space at L4 of the same rabbit. The animals were divided into control, and steroid groups. The control group received no treatment after surgery. In the lipopoly-saccharide group, rabbits were injected 1 mg/kg into the peritoneum immediately and at 7 days after surgery. In the steroid group, rabbits were injected with 1 mg/kg betamethasone into the epidural space daily from 1 to 7 days after surgery. Rabbits of each group were killed for histologic examination at 1, 2, 4, and 8 weeks after surgery. RESULTS: At 1 and 2 weeks after surgery, inflammatory cells and newly formed vessels were more frequently observed in the lipopoly-saccharide group than in the control and steroid groups. At 4 weeks after surgery, derangement and loosening of collagen fibers were also observed in the lipopoly-saccharide group. At 8 weeks after surgery, fragmentation and partial disappearance of matrix were observed in the control and lipopoly-saccharide groups. Most of the intervertebral discs were replaced by fibrous tissues in the lipopoly-saccharide group. However, the matrix of the ***intervertebral*** ***disc*** almost remained.

CONCLUSIONS:
 Autologous ***intervertebral*** ***disc*** material grafted into the epidural space was penetrated by newly formed vessels produced from the epidural fat tissue and resolved as the result of inflammatory reaction. Lipopoly-saccharide accelerated the replacement of grafted ***intervertebral*** ***disc*** by fibrous tissue, which suggests the resorption of the disc in the epidural space of the rabbit, whereas high-dose steroid suppressed the replacement.

L36 ANSWER 6 OF 24 MEDLINE
 AN 1998302111 MEDLINE
 DN 98302111
 TI A surgical technique for a vertebral column autograft using the ***intervertebral*** ***disc*** for cervical disc disease.
 AU Ito T; Minoshima S; Takeda M; Seki T; Fujiwara S; Takebayashi S
 CS Department of Neurosurgery, Kushiro Rousei Hospital, Japan.
 SO ACTA NEUROCHIRURGICA. (1998) 140 (3) 267-73.
 Journal code: 19C. ISSN: 0001-6268.
 CY Austria
 DT Journal, Article: (JOURNAL ARTICLE)
 LA English

FS Priority Journals
 EM 199812
 EW 19981201
 AB We describe a surgical technique for a vertebral column autograft using the ***intervertebral*** ***disc*** for cervical disc disease for patients whose major problem is not spinal instability. Of a total of 41 patients with cervical disc disease suffering from cervical spondylotic radiculomyelopathy, 33 patients were operated on at one level and 8 patients were operated on at two levels. Postoperative X-ray film showed some movement at the "operated" disc level in all patients (average postoperative follow-up period was 43 months, range two years to 5 years). A significant decrease in motion in the extension position was observed postoperatively ($p < 0.0001$), but no significant difference was observed between the preoperative motion and the postoperative motion in the flexion position. Anterior angulation was found in two (5%) of the 41 patients. This surgical procedure has two major advantages: 1) no complications related to the iliac donor site, allowing early patient mobilization; 2) the extensive posterior spur can be removed safely and easily under a wide operative field. We believe that this surgical procedure is suitable for preserving the mobility of the spine and may avoid stress concentration at adjacent levels of the "operated" disc. However, in patients whose major problem is spinal instability, anterior cervical fusion should be performed.

L36 ANSWER 7 OF 24 MEDLINE
 AN 1998310736 MEDLINE
 DN 98310736
 TI Possible mechanism of painful radiculopathy in lumbar disc herniation
 AU Kawakami M; Tamaki T; Hayashi N; Hashizume H; Nishi H
 CS Department of Orthopedic Surgery, Wajiyama Medical College, Japan.
 SO CLINICAL ORTHOPAEDICS AND RELATED RESEARCH. (1998 Jun) (351) 241-51.
 Journal code: DFT. ISSN: 0009-921X.
 CY United States
 DT Journal, Article: (JOURNAL ARTICLE)
 LA English
 FS Abridged Index Medicus Journals; Priority Journals
 EN 1998R9
 EW 1998R904
 AB The pathophysiologic mechanisms of painful radiculopathy

caused by a herniated ***intervertebral*** ***disc*** remain unknown. This study sought to determine whether the ***autologous*** ***intervertebral*** ***disc*** produces pain related behavior and whether phospholipase A2 and nitric oxide are involved in the pathophysiologic mechanism producing the behavior. A rat model, in which ***autologous*** intervertebral discs were implanted on the nerve root in the lumbar spine, was used to measure hyperalgesia, which is a pain related behavior in the rat. In this experimental model, ***autologous*** nucleus pulposus and annulus fibrosus transplanted to lumbar nerve roots produced mechanical and thermal hyperalgesia, respectively. Epidural injection of a selective inhibitor for phospholipase A2 resulted in the disappearance of hypersensitivity to noxious mechanical stimuli. Thermal hyperalgesia produced by application of the annulus fibrosus was abated and abolished by epidural injections of saline and one of the inhibitors for nitric oxide synthase, respectively.

The authors suggest that chemical mediators such as phospholipase A2 and nitric oxide, induced by extruded or sequestered intervertebral discs, are involved in the pathophysiologic mechanisms of painful radiculopathy in lumbar disc herniations. This study may be useful in attempting to develop new medical approaches for treatments of lumbar disc herniation.

L36 ANSWER 8 OF 24 MEDLINE
 AN 1998291888 MEDLINE
 DN 98291888
 TI Simultaneous combined anterior and posterior lumbar fusion with femoral cortical allograft.
 AU Liljeqvist U; O'Brien J P; Rention P
 CS Spinal Surgery Unit, London Clinic, UK.
 SO EUROPEAN SPINE JOURNAL. (1998) 7 (2) 125-31.
 Journal code: B9Y. ISSN: 0940-6719.
 CY GERMANY; Germany, Federal Republic of
 DT Journal, Article: (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EN 1998I0
 EW 1998I003
 AB The radiographic fusion rates, graft behaviour and clinical outcome of 41 patient with simultaneous combined anterior lumbar interbody

fusion and

posterior arthrodesis with translamina screws were reviewed independently. In all patients a femoral cortical allograft (FCA) ring filled with ***autologous*** iliac crest cancellous bone was used

anteriorly to replace the disc and achieve interbody fusion. The follow-up averaged 30.6 months, with a minimum follow-up of 24 months.

All patients had disabling low-back pain with different degrees of radiating leg pain

and either discogenic pain (n = 24) or a postdiscectomy syndrome (n = 15)

respectively postfusion syndrome (n = 2). The overall fusion rate was

95.2% (59 of 62 segments). Time to radiographic fusion averaged 8.7 months

(range 2-34 months), and in 66.1% radiographic fusion occurred without

significant subsidence. In 18.6% fusion with subsidence resulted from

resorption of the FCA and in 15.3% the FCA had protruded into the vertebral body. The posterior ***intervertebral*** ***disc***

height (PIVDH) increased postoperatively by 2 mm on average. However, loss

of PIVDH was the rule, and occurred within the first 12 postoperative

months, resulting in a negligible final gain in height of 0.3 mm on average. The segmental lordosis was increased by 3 degrees, however, loss

of lordosis during the first 6 postoperative months led to a final gain in

lordosis of 1.3 degrees on average. Graft incorporation occurred in 16 of

62 segments (25.8%) and was observed at an average of 21.9 months

postoperatively. Subjectively, 82.4% of the patients were satisfied or

highly satisfied with the clinical result of the fusion operation. In conclusion, the described technique has proven to be highly effective in

achieving a high fusion rate with a good patient outcome.

L36 ANSWER 9 OF 24 EMBASE COPYRIGHT 2000 ELSEVIER SCI. B.V.

AN 1998102308 EMBASE

TI Compositional influences for regression of the sequestered lumbar disc

hernia in dogs.

AU Hasegawa T.; An H.S.; Imutusa A.; Fuse K.; Mikawa Y.;

Watanabe R.

CS Dr T. Hasegawa, Department of Orthopedic Surgery, Kawasaki Medical

School, 577 Matsushima Kurashiki,

SO Neuro-Orthopedics, (1998) 22(2) (69-75).

Ref5 14

ISSN: 0177-7955 CODEN: NEOREQ

CY Austria

DI Journal, Article

FS 005 General Pathology and Pathological Anatomy

008 Neurology and Neurosurgery

033 Orthopedic Surgery

LA English

SL English

AB The authors investigated compositional influences, comparing

between the

nucleus pulposus and annulus fibrosus, in the regression of a

sequestered

lumbar disc using an autogenous animal model in dogs. Nine

mongrel dogs

weighing from 10 to 15 kg underwent L4-L5, L5-L6, L6-L7

interlaminar

fenestration and discectomies under general anesthesia.

Autologous

intervertebral

fragments that were

obtained from

the tail of the dogs were divided into annulus fibrosus and nucleus

pulposus fragments. The annulus fibrosus and nucleus pulposus

fragments

were placed in the anterolateral epidural space of L5-L6 and L6-L7

disc

levels, respectively. L4-L5 discectomy served as control. Three

dogs were

euthanized at a time at 4, 12, 24 weeks postoperatively. The lumbar

spine

was removed carefully en bloc, prepared histologic sections

consequently

and examined. In the nucleus pulposus group, neovascularity and

intensive

infiltration of lymphocytes and macrophages were observed at 4

weeks, and

a complete resolution of the nucleus pulposus resulted at 12 weeks

after

surgery. In the annulus fibrosus group, inflammatory infiltration

was

slight, and significant regression was not noted. This study revealed

that

there are definite differences between the nucleus pulposus and the

annulus fibrosus in terms of regression and tissue response

characteristics. The nucleus pulposus elicited more vascular and

inflammatory responses early, and its resorption was greater as

compared

to the annulus fibrosus.

L36 ANSWER 10 OF 24 MEDLINE

AN 97283038 MEDLINE

DN 97283038

TI ***intervertebral*** ***disc*** autografting in a bipedal

animal

model.

AU Luk K.D.; Ruan D.K.; Chow D.H.; Leong J.C.

CS Department of Orthopedic Surgery, University of Hong Kong,

China.

SO CLINICAL ORTHOPAEDICS AND RELATED RESEARCH, (1997 Apr) (337) 13-26.

Journal code: DFY. ISSN: 0009-921X.

CY United States

DI Journal, Article; (JOURNAL ARTICLE)

LA English

FS Abridged Index Medicus Journals; Priority Journals

EM 19970801

EW 19970801

AB Fusion of the spine while restoring stability of the spinal

segment, fails

to preserve spinal mobility. Long term complications of accelerated

degeneration in the neighboring segments have been reported. The

present

study explores the possibility of ***intervertebral***

disc

autografting in a bipedal animal model by isolating a lumbar disc

together

with the adjacent end plates and repositioning it with minimal

internal

fixation. Fourteen Rhesus monkeys were sacrificed at 2, 4, 6, and

12

months after surgery and the grafted discs were examined

radiologically,

biochemically, pathologically, and biomechanically. Healing of the

bony

end plate was seen between 2 to 4 months postoperatively. There

was early

loss of disc height at 2 and 4 months but there was a suggestion of

some

reconstitution up to 12 months. There was minimal evidence of

gross

degeneration at all stages. Gradual loss of water content was found

in the

annulus and the nucleus. The nucleus pulposus seemed to be able

to

reaccumulate proteoglycan after an initial drop in the first 4 months.

There was significant increase in hydoxyproline content in the

annulus

fibrosus and the nucleus pulposus. Biomechanically, the grafted

disc

showed hypermobility in the first 4 months but gradually became

stabilized

with time. Results from this study suggested that a fresh

intervertebral ***disc*** autograft could survive a

period of

ischemia. Although the physiology of the disc was deranged, it was

able to

preserve a certain degree of segmental mobility without sacrificing

stability. Further studies are required to validate these results and

the

field of disc allografting should be explored.

L36 ANSWER 11 OF 24 MEDLINE

AN 96435389 MEDLINE

DN 96435389

TI New surgical technique of anterior decompression for cervical disc

disease: vertebral column autograft with the ***intervertebral***

disc after anterior cervical decompression.

AU Iai T, Muroshima S, Takeda M, Takebayashi S, Seki T

CS Department of Neurosurgery, Kushiro Ronsai Hospital, Kushiro, Japan.

SO NO SHINKEI GEKA. NEUROLOGICAL SURGERY. (1996 Sep) 24 (9) 823-7.

Journal code: NIV. ISSN: 0301-2603.

CY Japan

DT Journal: Article. (JOURNAL ARTICLE)

LA Japanese

FS Priority Journals

EM 199701

EW 19970104

AB The authors describe the surgical technique of vertebral column autograft with the ***intervertebral*** ***disc*** after anterior decompression for cervical disc disease. This series consisted of 41 patients with cervical disc disease suffering from cervical spondylotic

radiculomyelopathy. There were 27 men and 14 women, ranging in age from 27

to 72 years (mean age 49 years). 33 patients were operated on at one level

and 8 patients at two levels. The average postoperative follow-up period

was one year 10 months and ranged from 6 months to 3 years 3 months. The

patients were generally allowed out of bed wearing a soft collar within 1

day postoperatively. The collar was used for 2 months after surgery. The

postoperative course of all patients was uneventful and neurological symptoms improved. Postoperative X-ray films showed some

movement in the

operated disc level in all patients. The authors think that this

surgical

procedure may be suitable for preserving mobility of the spine.

L36 ANSWER 12 OF 24 MEDLINE DUPLICATE

AN 96260914 MEDLINE

DN 96260914

TI Long-term evaluation of radiographic changes following cervical anterior

fusion with hydroxyapatite ceramic spacer.

AU Imae S, Harada Y, Koyama T

CS Department of Neurosurgery, Onsu Municipal Hospital, Japan

SO NO SHINKEI GEKA. NEUROLOGICAL SURGERY. (1996 Jun) 24 (6) 535-40.

Journal code: NIV. ISSN: 0301-2603.

CY Japan

DT Journal: Article. (JOURNAL ARTICLE)

LA Japanese

FS Priority Journals

EM 199610

EW 199610

AB Cervical anterior fusion with iliac bone crest has become a

popular

surgical technique for cervical spondylotic disease. Since about 10

years

ago, we have substituted hydroxyapatite ceramic spacer for

autologous graft because of postoperative painful hip

syndrome.

Fourteen patients who underwent cervical anterior fusion with

ceramic

spacer were evaluated by plain radiographs for over eight years

postoperatively. In six among the fourteen patients plain films

demonstrated minimal stenosis of ***intervertebral***

disc

height, of which the ratio ranged from 15% to 28% (mean 22%).

The increase

in mobility of the adjacent segment after fusion was noted in ten of

the

fourteen patients, although the ratio ranged only between 12% and

24% (mean 18%). In none of all the patients did dynamic plain films

show

cervical instability such as slippage and swan neck deformity. It

seems

that anterior fusion with ceramic spacer is a useful and safe method

for a

cervical spondylotic disease.

L36 ANSWER 13 OF 24 MEDLINE DUPLICATE

AN 96272130 MEDLINE

DN 96272130

TI Median corpectomy in cervical spondylotic multisegmental

stenosis.

AU Burger R, Torn J C, Vince G H, Hofmann E, Reiners K, Roosen

K

CS Neurochirurgische Klinik, Universitaet Wurzburg

SO ZENTRALBLATT FUR NEUROCHIRURGIE. (1996) 57 (2)

62-9.

Journal code: YGC. ISSN: 0044-4251.

CY GERMANY: Germany, Federal Republic of

DT Journal: Article. (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199611

AB Cervical median corpectomy as an alternative to laminoplasty and

laminectomy has been suggested as an effective treatment for

cervical

spondylotic myelopathy (CSM) in cases of multisegmental

spondylotic

stenosis. We report on our experience with this procedure with

particular

reference to neurological outcome and complications. Median

corpectomy was

performed in 17 cases (3 female, 14 male; mean age 59 yrs, (41-80

yrs.)

with cervical myelopathy (CM) and radiologically diagnosed

multisegmental

spondylotic stenosis and spinal cord compression seen on MRI.

The degree

of stenosis was determined by means of the modified Pavlov's

index (ratio

between spinal canal width at the level of the

intervertebral

disc and the diameter of the vertebral body itself). 3/17

patients

suffered from acute, 4/17 from subacute and 10/17 from chronic

CM. Single

level corpectomy was performed in 9 cases, one and a half

vertebrae were

removed in 2 cases and dual level corpectomy was performed in the

remaining 6 cases. All patients received an ***autologous***

bone

graft and AO - anterior plate stabilization or were stabilized as

described by Morscher. Postoperative follow - up was possible in

16/17

cases over a mean time of 13.5 months. Myelopathy was graded

according to

Nurick's scale. Postoperatively, 12% with chronic CM improved by

two

grades, 38% (2 pts, with acute, 3 with subacute and 1 with chronic

CM)

improved by one grade. The other patients remained stable, none

showed

worsening of their myelopathy. Paresis improved in 92%, sensory

deficits

in 69%, spasticity in 73%, pain in 60%, and vegetative disturbances

in 100% of all patients presenting these preoperative symptoms

respectively.

One patient died due to esophageal perforation and subsequent

lethal

mediastinitis caused by screw loosening 4 months following surgery

and

after initial neurological improvement. 4 other patients experienced

screw

loosening, three with acetabulosis, one remained clinically

asymptomatic

with concomitant graft displacement in two of these. One patient

had to be

re-operated due to a hematoma at the iliac crest and 2 suffered from

a

pelvic fracture of the spina iliaca at the site of graft removal. With

respect to the neurological improvement, especially to the motor

function

and spasticity, median corpectomy can be regarded as an effective

procedure in selected cases with cervical myelopathy, even when

treatment

related complications are taken into consideration.

L36 ANSWER 14 OF 24 MEDLINE DUPLICATE

AN 96034623 MEDLINE

DN 96034623

TI The role of inflammation in lumbar pain [see comments]

CM Comment in: Spine 1996 Apr 1;21(7):898-9

AU Saal J S
 CS SOAR, Physiatry Medical Group, Menlo Park, California, USA.
 SO SPINE. (1995 Aug 15) 20 (16) 1821-7. Ref: 45
 Journal code: UXK. ISSN: 0362-2436.
 CY United States
 DT Journal, Article; (JOURNAL ARTICLE)
 General Review; (REVIEW)
 (REVIEW, TUTORIAL)
 LA English
 FS Priority Journals
 EM 199603
 AB The clinical features of many cases of low back pain is inadequately explained by anatomic abnormalities alone. A pathophysiologic mechanism that includes a combination of mechanical and biochemical factors is an alternative explanation that is accompanied by less paradox than a purely structural paradigm. A potential unifying feature includes inflammation of neural elements caused by the chemical components of the ***intervertebral*** ***disc***. There is a historical basis to the concept of an immunologic potential of the lumbar disc. No *situ* evidence or discrete mechanism has been previously identified. The recent demonstration of immunohistopathologic evidence of an immunocompetent cellular response at the epidural interface of lumbar HNP's supports the concept of the immunogenic capacity of nucleus pulposus. The identification of high levels of an inflammatory enzyme, phospholipase A2, in lumbar herniated and degenerative discs presents the basis for a direct inflammatory capability of lumbar discs, separate from an immunologic mechanism. Subsequent experimental findings of conduction block and perineural inflammation as a consequence of extrathecal application of ***autologous*** nucleus pulposus and axonal injury after animal nerve injection of the human disc phospholipase A2 further validates this concept. There is a strong theoretic basis to support the concept that the clinical features of many lumbar disc patients may be explained by inflammation caused by biochemical factors alone or combined with mechanical deformation of lumbar tissues, rather than mechanical factors alone.

L36 ANSWER 15 OF 24 MEDLINE
 AN 95064279 MEDLINE

DN 95064279
 TI Lumbar ***intervertebral*** ***disc*** transfer. A canine study.
 AU Frick S L, Hanley E N Jr, Meyer R A Jr, Ramp W K, Chapman T M
 CS Department of Orthopaedic Surgery, Carolinas Medical Center, Charlotte, North Carolina.
 SO SPINE. (1994 Aug 15) 19 (16) 1826-34; discussion 1834-5.
 Journal code: UXK. ISSN: 0362-2436.
 CY United States
 DT Journal, Article; (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 199502
 AB STUDY DESIGN: Degenerative lumbar disc disease has been implicated as a cause of low back pain. Current treatment options for low back pain involve nonphysiologic fusion of the involved segments and have variable success rates. This is an experimental study of lumbar ***intervertebral*** ***disc*** transplantation using a canine surgical model. OBJECTIVES: This study evaluated the feasibility of lumbar disc transplantation and its effects on disc metabolism and morphology. METHOD: Eight mature mongrel dogs underwent disc transfer surgeries, in which the L2-L3 and L4-L5 intervertebral discs, with a small segment of adjacent superior and inferior vertebral body, were removed and transposed. The transplanted disc were stabilized by plates or by a flexible cable wire construct using Songer cables (DANERK, Inc., Memphis, TN). Unrestricted activity was allowed postoperatively. At 4 months, the spines were harvested, and the transplanted discs were evaluated biochemically and histologically. Intervening nontransplanted discs served as viable controls and thrice-frozen discs served as nonviable controls. Cell viability was assessed by measuring proteoglycan synthesis and DNA content. RESULT: Proteoglycan synthesis (35S uptake normalized to DNA content) was maintained in transplanted annulus fibrosus tissue, but was decreased in nucleus pulposus samples ($P < 0.05$). DNA content was not altered significantly in the transplanted discs. Histologic analysis of the transplanted discs showed revascularization and remodeling of the bone adjacent to the disc and preservation of the lamellar architecture of the annulus fibrosus. The transplanted nucleus pulposus samples had chondrocyte-like cells present, but the staining characteristics of the

nucleus material was variable. The contour of the transplanted disc endplates was irregular in all specimens. CONCLUSIONS: The structure and function of autograft intervertebral discs were maintained after disc transfer surgery; the transplanted discs, however, were not completely normal in either their morphology or their metabolic functioning.

L36 ANSWER 16 OF 24 MEDLINE
 AN 95179585 MEDLINE
 DN 95179585
 TI Anterior lumbar fusion using a hybrid interbody graft. A preliminary radiographic report.
 AU Holte D C, Orban J P, Renton P
 CS London Clinic, UK.
 SO EUROPEAN SPINE JOURNAL, (1994) 3 (1) 32-8. Ref: 32
 Journal code: B9Y. ISSN: 0940-6719.
 CY GERMANY: Germany, Federal Republic of
 DT Journal, Article; (JOURNAL ARTICLE)
 General Review; (REVIEW)
 (REVIEW OF REPORTED CASES)
 LA English
 FS Priority Journals
 EM 199506
 AB This is a radiographic report of 40 patients (20 men, 20 women) who underwent anterior lumbar interbody fusions (73 levels) utilizing a "hybrid" interbody graft composed of femoral cortical allograft (FCA) bone and iliac crest cancellous autograft bone. The average age at surgery was 38 years (range 17-64 years), and follow-up averaged 1.4 years (range 1.0-2.4 years). Nineteen of the patients had undergone previous lumbar surgery. Thirty-two patients (63 levels) underwent anterior fusion combined with some type of posterior fixation, and eight patients (10 levels) had no posterior fixation. Types of posterior fixation included: for 20 patients (36 levels) Steffee variable screw placement fixation, for 10 patients (23 levels) translamina facet screws (TFS), for 1 patient (3 levels) Knott rods and for 1 patient (1 level) facet screws. Based on the persistence of lucent lines at the graft-host interface, three patients (one level each) were felt to have non-unions at their latest follow-ups at 1.4, 1.5 and 2.0 years, respectively. Two of these patients had no posterior fixation, and the other had TFS fixation. The overall fusion rate was 96% (70 of 73 levels). The fusion rate for all levels treated with posterior fixation was 98%, compared with 75% for those without fixation. ***intervertebral*** ***disc*** heights (IVDH) were

measured on all films and corrected for magnification with computer assistance. On average, the IVDH was increased postoperatively but returned to preoperative values at follow-up. IVDH loss was independent of the type of instrumentation used. No complications arose from the use of the hybrid graft (ABSTRACT TRUNCATED AT 250 WORDS)

L36 ANSWER 17 OF 24 EMBASE COPYRIGHT 2000 ELSEVIER SCI. B.V. DUPLICATE 10

AN 92216677 EMBASE

DN 1992216677

TI An analysis of risk factors to predict the necessity of perioperative transfusions in ***intervetrenal*** ***disc*** surgery.

AU Dauch W.A.; Lang E.; Bauer B.L.

CS Department of Neurosurgery, Centre of Operative Medicine I, Philipps

University, Baldingerstrasse, W-3550 Marburg/Lahn, Germany

SO Theoretical Surgery, (1992) 7/3 (124-127).

ISSN: 0179-8669 CODEN: THSUDE6

CY Germany

DT Journal; Article

FS 008 Neurology and Neurosurgery

LA English

SL English

AB Homologous blood transfusions are currently performed during many surgical procedures. The growing awareness of possible infectious and allergic

complications has given rise to the development of alternatives to ***autologous*** transfusion, such as intraoperative cell-saving

techniques, or preoperative deposition of the patient's own blood. It seems desirable to predict preoperatively whether or not a patient is

at risk for major intraoperative blood loss in order to limit waste of materials, patient's blood and manpower. Clinical risk research is capable of estimating this risk quantitatively, as this paper demonstrates, for decompressive low back surgery in patients suffering from degenerative

diseases of the lumbar spine. Three features - age, preoperative haemoglobin level, and surgical procedure - are sufficient to distinguish

between high-risk and low-risk patients. The former run a 7.4 times higher risk of requiring intraoperative transfusions than the latter.

L36 ANSWER 18 OF 24 MEDLINE

AN 90015315 MEDLINE

DN 90015315

TI [Anterior discectomy as treatment for a cervical radicular syndrome].

De anterieure discectomie als behandelend voor een cervicale radiculair syndroom.

AU van den Bent M.J.; van Acker R.E.; Meyer J
SO NEDERLANDS TIJDSCHRIFT VOOR GENEESKUNDE,
(1989 Aug 5) 133 (31) 1550-4.

Journal code: NUK. ISSN: 0028-2162.

CY Netherlands

DT Journal; Article; (JOURNAL ARTICLE)

LA Dutch

EM 199001

AB The results are presented of a retrospective survey of anterior cervical surgery followed by fusion with ***autologous*** bone grafting

for the treatment of radiculopathy due to cervical ***intervetrenal***

disc protipes or spondylolist. The study included 46 patients, with a follow-up period of at least a year. Follow-up examination was performed

by an independent observer. Of the patients 38 (83%) were improved, 34 (74%) having a 'good' or 'excellent' response. Postoperative complications

were minor: the most frequent complication was pain or dysaesthesia at the

donor site of the bone graft, the iliac crest. It is questionable whether ***autologous*** bone grafting is indicated following anterior

discectomy.

L36 ANSWER 19 OF 24 MEDLINE DUPLICATE

AN 90011522 MEDLINE

DN 90011522

TI Effect of age on the abundance and fragmentation of link protein of the

human ***intervetrenal*** ***disc***

AU Pearce R.H.; Mathieson J.M.; Mort J.S.; Roughley P.J

CS Department of Pathology, Faculty of Medicine, University of British

Columbia, Vancouver, Canada.

SO JOURNAL OF ORTHOPAEDIC RESEARCH, (1989) 7 (6) 861-7.

Journal code: JIQ. ISSN: 0736-0266.

CY United States

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199001

AB The link proteins of the human ***intervetrenal*** ***disc***

were studied in tissue extracts by sodium dodecyl sulfate/polyacrylamide gel electrophoresis (SDS/PAGE), followed by immunoblotting,

using a specific monoclonal antibody. Three link proteins were detected, corresponding in electrophoretic mobility to those present in articular cartilage. As with articular cartilage, the largest link protein

predominates in the young, whereas in the adult the smallest link protein is equally abundant and internal fragmentation of the link proteins occurs. Only in the newborn is the quantity of extractable link protein

comparable to that from articular cartilage. In the adult, the disc contains much less link protein than is present in ***autologous***

articular cartilage. Neither the amount nor heterogeneity of the link protein differs among different levels within the lumbar spine, although the proportions of the three proteins can differ between the annulus

fritrosus and nucleus pulposus. The annulus always contained more extractable link protein relative to tissue wet weight than the nucleus,

and the nuclear link protein, at least in adolescents, contained a greater

proportion of the smallest link protein. Such changes in the quantity and structure of the disc link proteins may affect the properties of the proteoglycan aggregates and, thus, could influence disc function.

L36 ANSWER 20 OF 24 MEDLINE

AN 81113360 MEDLINE

DN 81113360

TI Anterior route ***intervetrenal*** ***disc*** excision and bone

grafting in cervical spondylitic myelopathy.

AU Zhang Z.H.; Yin H.F.; Yang K.Q.; Zhang T.C.; Dong F.C.; Dang G.D.; Lou S.Q.; Cai

Q.L.

SO CHINESE MEDICAL JOURNAL, (1980 Dec) 93 (12) 865-8.

Journal code: D3B. ISSN: 0366-6999.

CY China

DT Journal; Article; (JOURNAL ARTICLE)

LA English

EM 198106

L36 ANSWER 21 OF 24 MEDLINE

AN 78204506 MEDLINE

DN 78204506

TI Fracture dislocation of the cervical spine. Value of anterior approach

with bovine bone interbody fusion.

AU Goran A.; Murthy K.K.

SO SPINE, (1978 Jun) 3 (2) 95-102.

Journal code: UXX. ISSN: 0362-2436.

CY United States

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 197810

AB Twenty surgically treated cases of fracture dislocation of the cervical spine are presented. All patients had hyperflexion injuries with associated rupture of the ***intervetrenal*** ***disc***

All

patients were operated on through an anterior surgical approach.

Ten consecutive patients had interbody fusion with autogenous bone and ten consecutive patients were fused anteriorly with bovine (Kiel) bone.

All patients' injuries fused satisfactorily. There was no significant difference between the use of autogenous bone and bovine bone.

L36 ANSWER 22 OF 24 MEDLINE
AN 78247268 MEDLINE
DN 78247268
TI A technical modification of Cloward's posterior lumbar interbody fusion.
AU Lin P M
SO NEUROSURGERY. (1977 Sep-Oct) 1 (2) 118-24.
Journal code: NZL. ISSN: 0148-396X.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 197812
AB The concept of interbody (intercorporeal) fusion as a useful treatment for ***intervertebral*** disease in the cervical area has been well received. Thirty-two years have passed since Cloward first introduced his technique of posterior lumbar intervertebral fusion. The author believes that the delayed acceptance of this procedure is due to fear of technical difficulties. A technical modification of Cloward's posterior lumbar interbody fusion is introduced. It entails better technique in controlling epidural bleeding by careful positioning of the patient and the use of oxidized cellulose as a tampon in the epidural space. The integrity of the facet is preserved through a more limited interlaminar approach. Osteosynthesis of the grafts is assured by multiple perforations of the cortical plate in accordance with Robinson's principle utilized in cervical interbody fusion. The author believes that the modification simplifies the Cloward posterior lumbar interbody fusion. It also assures better stability after surgery by retention of the facet and lessening the dangers of settlement of the graft by preservation of the cortical plate. In a series of 75 cases, tomograms made 4 months after operation have shown a viable graft with active osteosynthesis between the graft and the adjoining vertebral bodies in 94%.

L36 ANSWER 23 OF 24 MEDLINE
AN 75134887 MEDLINE

DN 75134887
TI Intervertebral bone implants following excision of protruded lumbar discs.
AU Christoferson L A; Selland B
SO JOURNAL OF NEUROSURGERY. (1975 Apr) 42 (4) 401-5.
Journal code: JD3. ISSN: 0022-3085.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Abridged Index Medicus Journals; Priority Journals
EM 197508
AB The authors describe a technique whereby a portion of the lamina removed during exposure of an intervertebral lumbar disc protrusion is implanted in the ***intervertebral*** space following disc excision. An analysis of 456 consecutive cases operated on by this technique and followed from 1 to 10 years is presented. Of the 418 patients followed, 92 per cent indicated they were able to return to their normal activities and were satisfied with the result. Thirty percent of the patients indicated they had required some conservative treatment for recurrent episodes of back or leg pain. Ten patients had subsequent surgery; only one implant has dislocated.

L36 ANSWER 24 OF 24 EMBASE COPYRIGHT 2000
ELSEVIER SCI. B. V.
AN 76002665 EMBASE
DN 1976002665
TI In vitro inhibition of leukocyte migration in patients with ***intervertebral*** lesions.
AU Elwes M W.; Bucknill T.; Sullivan M F.
CS Inst. Orthop. Univ. London, United Kingdom
SO Orthopedic Clinics of North America. (1975) 6/1 (59-65)
CODEN: OCLNAQ
DT Journal
FS 033 Orthopedic Surgery
005 General Pathology and Pathological Anatomy
019 Rehabilitation and Physical Medicine
031 Arthritis and Rheumatism
LA English
AB Patients with the prolapsed intervertebral disk syndrome were examined for sensitization to ***autologous*** intervertebral disk extract using the leukocyte migration inhibition test. 3 Patients of 12 studied 10 to 14 days after disectomy showed inhibition of leukocyte migration. All 3 patients had sequestered protruded disks. None of the 8 patients with disk protrusion and no sequestration gave a positive reaction. In one patient who was studied in detail, inhibition of leukocyte migration occurred in the presence of disk extract from another, nonsensitized

patient. It was found that leukocyte migration was inhibited strongly and nonspecifically by disk extracts in high concentration. This nonspecific effect could be eliminated by dilution.

=> e hanley edward/au

E1 11 HANLEY E W/AU
E2 1 HANLEY EARL/AU
E3 0 -> HANLEY EDWARD/AU
E4 1 HANLEY EDWARD J/AU
E5 1 HANLEY EDWARD M J/AU
E6 1 HANLEY EDWARD N/AU
E7 28 HANLEY EDWARD N R/AU
E8 2 HANLEY EDWARD NATHANIEL JR/AU
E9 5 HANLEY EDWARD W/AU
E10 2 HANLEY ELISEN/AU
E11 1 HANLEY ELISEN M/AU
E12 1 HANLEY ELIS/AU

=> s e6-e8

L37 31 (*HANLEY EDWARD N*/AU OR *HANLEY EDWARD N JR*/AU OR *HANLEY EDWARD NATHANIEL JR*/AU)

=> s l37 and intervertebral/ab,bi

'AB' IS NOT A VALID FIELD CODE
L38 7 L37 AND INTERVERTEBRAL/AB,BI

=> dup rem l38

PROCESSING COMPLETED FOR L38
L39 6 DUP REM L38 (1 DUPLICATE REMOVED)

=> d 1 - bib ab

YOU HAVE REQUESTED DATA FROM 6 ANSWERS - CONTINUE? Y/(N)/Y

L39 ANSWER 1 OF 6 CAPLUS COPYRIGHT 2000 ACS
AN 2000.604181 CAPLUS
TI Optimization of 5-(and-6)-carboxyfluorescein diacetate succinimidyl ester for labeling human ***intervertebral*** disc cells in vitro
AU Gruber, Helen E.; Leslie, Kelly P.; Ingram, Jane A.; ***Hanley, Edward***
N, Jr.***
CS Orthopaedic Research Biology, Carolinas Medical Center, Charlotte, NC.
38232. US
SO Biotech. Histochem (2000) 75(3), 118-123
CODEN: BIHFUE. ISSN: 1052-0295

PB Lippincott Williams & Wilkins
 DT Journal
 LA English
 AB We have assessed the utility of an intracellular fluorochrome, 5-(and-6)-carboxyfluorescein diacetate succinimidyl ester (CFSE), as a tracking label for human ***intervetrenal*** disk cells in vitro. Although 5 muM provides adequate intracellular labeling for whole cell fluorescent microscopic identification of labeled cells, 20 muM was preferable for immunocytochem. localization of paraffin embedded labeled cells. Electron dense vesicles are seen at the ultrastructural level in labeled cells. Discrete vesicular labeling can also be obtd. in whole cell mounts viewed with fluorescence microscopy. Whole cells retain good label for 6 wk. CFSE labeling is relatively easy, nontoxic to cells and nonradioactive. Initial optimization of dose with specific cell types is recommended when confirmation of pos. immunocytochem. is needed for tissue engineering studies.

L39 ANSWER 2 OF 6 INPADOC COPYRIGHT 2000 EPO

LEVEL 1
 AN 5045925 INPADOC EW 199925 UP 1999109 UW 199944
 TI METHOD FOR PRODUCING HUMAN
 INTER VETREBAL DISC CELLS
 IN HANLEY, EDWARD, NATHANIEL, JR.; GRUBER, ELIZABETH HELEN
 INS ***HANLEY EDWARD NATHANIEL JR*** ; GRUBER ELIZABETH HELEN
 INA US: US
 PA CHARLOTTE-MECHLENBURG HOSPITAL AUTHORITY; HANLEY, EDWARD, NATHANIEL, JR.; GRUBER, ELIZABETH HELEN
 PAS CHARLOTTE-MECHLENBURG HOSPITAL; HANLEY EDWARD NATHANIEL JR; GRUBER ELIZABETH HELEN
 PAA US: US; US
 TL English; French
 LA English
 DT Patent
 PIT WOAT PUBL OF THE INT. APPL. WITH INT. SEARCH REPORT
 PI WO 9927077 A1 19990603
 DS RW: CH GN KE LS MW SD SZ UG ZW AM AZ BY KG KZ MD RU TJ TM AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE BF BJ CF CG CI CN GA GN GW ML NR NE SN TD TG W: AL AM AT AU AZ BA BB BG BR BY CA CH CN CZ CZ DE DE DK DK EE EE

ES FI PL GB GE GH GM HR HU ID IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US UZ VN YU ZW
 AI WO 1998-US25137 A 19981124
 PRAI US 1997-979674 A 19971126
 OSDW 99-385212
 AB There is provided a method for growing human ***intervetrenal*** cells. Disc tissue is surgically removed from a normal disc of a patient, the cells expanded by feeding with a cell stimulant such as a growth factor, or a cytokine or a bioactive agent to form monolayer primary cell cultures on a plastic mesh such as a nylon mesh. In the case of a growth factor, fetal bovine serum is preferred as it improves cell proliferation and production of appropriate extracellular matrix components. In another aspect of this invention, the monolayer primary cell cultures are seeded in alginate or agarose and fed again with the cell stimulant until three-dimensional cell cultures are formed. The cells are recovered from the alginate or agarose or from monolayer cultures. Re-implantation is earned out using bioresorbable carriers or cell suspensions.

L39 ANSWER 3 OF 6 INPADOC COPYRIGHT 2000 EPO

LEVEL 1
 AN 113020209 INPADOC ED 19990916 EW 199936 UP 19990916 UW 199936
 TI METHOD FOR PRODUCING HUMAN
 INTER VETREBAL DISC CELLS
 IN EDWARD NATHANIEL HANLEY JR.; ELIZABETH HELEN GRUBER
 INS ***HANLEY EDWARD NATHANIEL JR*** ; GRUBER ELIZABETH HELEN
 PA CHARLOTTE-MECHLENBURG HOSPITAL AUTHORITY PAS CHARLOTTE-MECHLENBURG HOSPITAL
 DT Patent
 PIT AUAI COMP. SPEC. OPEN TO PUB. INSP.
 PI AU 9916045 A1 19990615
 AI AU 1999-16045 A 19981124
 PRAI US 1997-979674 A 19971126
 WO 1998-US25137 W 19981124

L39 ANSWER 4 OF 6 CAPLUS COPYRIGHT 2000 ACS
 AN 1997-772149 CAPLUS
 DN 128-8703
 TI Characterization and phenotypic stability of human disk cells in vitro
 AU Gruber, Helen E.; Stasky, Audrey A.; ***Hanley, Edward N.,

Jr.***
 CS Department of Orthopedic Surgery, Carolinas Medical Center, Charlotte, NC, USA
 SO Matrix Biol. (1997), 16(5), 285-288
 CODEN: MTBOEC; ISSN: 0945-053X
 PB Gustav Fischer Verlag Jena GmbH
 DT Journal
 LA English
 AB Successful in vitro studies of disk cells require interaction of the cell with a compatible microenvironment which favors expression of the disk cell phenotype. The objective of this study was to characterize cells grown by standardized methods of isolation and passage, and culture cells from the human annulus in three-dimensional culture. Cells from the annulus of 11 individuals were cultured in alginate or agarose for ten days, and extracellular matrix components were evaluated with immunohistochem. and quant. anal. of the percent of colonies producing Type I or II collagen, 4-sulfated chondroitin sulfate or keratan sulfate. Results show prodn. of these four extracellular matrix products through multiple passages and support the phenotypic stability of disk cells in three-dimensional culture.

L39 ANSWER 5 OF 6 BIOSIS COPYRIGHT 2000 BIOSIS
 DUPLICATE 1
 AN 1997-449258 BIOSIS
 DN PREV19979748461
 TI Human ***intervetrenal*** disc cells from the annulus: Three-dimensional culture in agarose or alginate and responsiveness to TGF-beta-1
 AU Gruber, Helen E. (1); Fisher, E. Carl, Jr.; Desai, Bhaloo; Stasky, Audrey A.; Hoelscher, Gretchen; ***Hanley, Edward N., Jr.***
 CS (1) Dep. Orthopaedic Surgery, Carolinas Med. Cent., P.O. Box 32861, Charlotte, NC 28232 USA
 SO Experimental Cell Research, (1997) Vol. 235, No. 1, pp. 13-21. ISSN: 0014-4827.
 DT Article
 LA English
 AB Cell culture procedures were developed for use with surgical and normal control specimens of the annulus of the human ***intervetrenal*** disc. Cells were established in monolayer explant culture and seeded into three-dimensional growth environments of alginate or agarose.

under these growth conditions cells assumed a rounded phenotype and formed colonies. A novel method of layering suspensions of cells onto cell well inserts proved technically much easier than the microbead culture method. Immunohistochemistry was utilized to demonstrate in vitro production of the following extracellular matrix components: types I, II, III, and VI collagen, 4-S-chondroitin sulfate, and keratan sulfate. Young and old age- and gender-matched cells grown in the presence of TGF-beta-1 showed significant enhancement of proliferation after 4 days of exposure to TGF-beta with a lessened mitogenic response present after 10 days. Molecular studies of proteoglycan gene expression showed that at 4 days young normal cells had increased biglycan, but not decorin, message levels. Decorin expression was unchanged at Day 4 and decreased off by Day 10. Results support the use of three-dimensional culture systems for in vitro evaluation of human disc cell function and expand our understanding of the in vitro behavior of these cells.

L39 ANSWER 6 OF 6 BIOSIS COPYRIGHT 2000 BIOSIS
AN 1994;445252 BIOSIS
DN PREVI 1994/97458252
TI Lumber ***Intervertebral*** disc transfer: A canine study.
AU Frick, Steven L. (1); ***Hanley, Edward N., Jr.***; Meyer, Ralph A.; Ramp, Warren K.; Chapman, Todd M.
CS (1) Dep. Orthopaedic Surg., Carolinas Med. Cent., P. O. Box 32861,
Charlotte, NC 28232 USA
SO Spine. (1994) Vol. 19, No. 16, pp. 1826-1835.
ISSN: 0362-2436.
DT Article
LA English
AB Study Design: Degenerative lumbar disc disease has been implicated as a cause of low back pain. Current treatment options for low back pain involve morphologic fusion of the involved segments and have variable success rates. This is an experimental study of lumbar ***Intervertebral*** disc transplantation using a canine surgical model.
Objectives: This study evaluated the feasibility of lumbar disc transplantation and its effects on disc metabolism and morphology.
Method: Eight mature mongrel dogs underwent disc transfer surgeries, in which the L2-L3 and L4-L5 ***Intervertebral*** discs, with a small segment of adjacent superior and inferior vertebral body, were removed and transposed. The transplanted discs were stabilized by plates or by a

flexible cable wire construct using Songer cables (DANEC, Inc., Memphis, TN). Unrestricted activity was allowed postoperatively. At 4 months, the spines were harvested, and the transplanted discs were evaluated biochemically and histologically. Intervening nontransplanted discs served as viable controls and thrice-frozen discs served as nonviable controls.
Cell viability was assessed by measuring proteoglycan synthesis and DNA content. Results: Proteoglycan synthesis (35S uptake normalized to DNA content) was maintained in transplanted annulus fibrosus tissue, but was decreased in nucleus pulposus samples (P lt 0.05). DNA content was not altered significantly in the transplanted discs. Histologic analysis of the transplanted discs showed revascularization and remodeling of the bone adjacent to the disc and preservation of the lamellar architecture of the annulus fibrosus. The transplanted nucleus pulposus samples had chondrocyte-like cells present, but the staining characteristics of the nucleus material was variable. The contour of the transplanted disc endplates was irregular in all specimens. Conclusions: The structure and function of autograft ***Intervertebral*** discs were maintained after disc transfer surgery; the transplant discs, however, were not completely normal in either their morphology or their metabolic functioning.

=> e gruber helen/au
E1 149 GRUBER HEINZ/AU
E2 2 GRUBER HEINZ DIPL ING/AU
E3 3-> GRUBER HELEN/AU
E4 13 GRUBER HELEN A/AU
E5 48 GRUBER HELEN E/AU
E6 1 GRUBER HELEN/AU
E7 1 GRUBER HELEN/AU
E8 3 GRUBER HELGA/AU
E9 36 GRUBER HELMUT/AU
E10 1 GRUBER HELMUT DIPL PHY/S/AU
E11 2 GRUBER HENNING/AU
E12 1 GRUBER HENRY T/AU
=> s e5-c6
L40 49 (*GRUBER HELEN E/AU OR *GRUBER HELEN ELIZABETH/AU)
=> s l40 and intervertebral/ab bi
/AB IS NOT A VALID FIELD CODE

L41 5 L40 AND INTERVERTEBRAL/AB,BI
=> dup rem l41
PROCESSING COMPLETED FOR L41
L42 4 DUP REM L41 (1 DUPLICATE REMOVED)
=> d 1-bib ab
YOU HAVE REQUESTED DATA FROM 4 ANSWERS -
CONTINUE? Y(N)Y
L42 ANSWER 1 OF 4 INPADOC COPYRIGHT 2000 EPO
LEVEL 1
AN 132171799 INPADOC ED 20000801 EW 200030 UP
20000801 UW 200030
TI METHOD FOR PRODUCING HUMAN
INTERVERTEBRAL DISC CELLS
IN HANLEY, JR., EDWARD NATHANIEL; GRUBER, HELEN ELIZABETH
INS HANLEY JR EDWARD NATHANIEL, ***GRUBER HELEN ELIZABETH***
INA US; US
PA CHARLOTTE-MECKLENBURG HOSPITAL AUTHORITY
PAS CHARLOTTE-MECKLENBURG HOSPITAL
PAA US
DT Patent
PI USA UNITED STATES PATENT
PT US 6080579 A 20000627
AU US 1997-979674 A 19971126
PRAI US 1997-979674 A 19971126
AB There is provided a method for growing human ***Intervertebral*** cells. Disc tissue is surgically removed from a normal disc of a patient, the cells expanded by feeding with a cell stimulant such as a growth factor, or a cytokine or a bioactive agent to form monolayer primary cell cultures on a plastic mesh such as a nylon mesh. In the case of a growth factor, fetal bovine serum is preferred as it improves cell proliferation and production of appropriate extracellular matrix components. In another aspect of this invention, the monolayer primary cell cultures are seeded in alginate or agarose and fed again with the cell stimulant until three-dimensional cell cultures are formed. The cells are recovered from the alginate or agarose or from monolayer cultures. Re-implantation is carried out using bioresorbable carriers or cell suspensions.
L42 ANSWER 2 OF 4 CAPLUS COPYRIGHT 2000 ACS

AN 2000:604181 CAPLUS
 TI Optimization of 5-(and-6)-carboxyfluorescein diacetate succinimidyl ester
 for labeling human ***intervertebral*** disc cells in vitro
 AU ***Gruber, Helen E.*** ; Leslie, Kelly P.; Ingram, Jane A.; Hanley, Edward N., Jr.
 CS Orthopaedic Research Biology, Carolinas Medical Center, Charlotte, NC, 28232, USA
 SO Biotech. Histochern. (2000) 75(3), 118-123
 CODEN: BHIIEU; ISSN: 1052-0295
 PB Lippincott Williams & Wilkins
 DT Journal
 LA English
 AB We have assessed the utility of an intracellular fluorochrome, 5-(and-6)-carboxyfluorescein diacetate succinimidyl ester (CFSE), as a tracking label for human ***intervertebral*** disc cells in vitro. Although 5, μ M provides adequate intracellular labeling for whole cell fluorescent microscopic identification of labeled cells, 20, μ M was preferable for immunocytochem. localization of paraffin embedded labeled cells. Electron dense vesicles are seen at the ultrastructural level in labeled cells. Discrete vesicular labeling can also be obsd. in whole cell mounts viewed with fluorescence microscopy. Whole cells retain good label for 6 wk. CFSE labeling is relatively easy, nontoxic to cells and nonradioactive. Initial optimization of dose with specific cell types is recommended when confirmation of pos. immunocytochem. is needed for tissue engineering studies.

L42 ANSWER 3 OF 4 CAPLUS COPYRIGHT 2000 ACS
 AN 1997:772149 CAPLUS
 DN 128 87023
 TI Characterization and phenotypic stability of human disk cells in vitro
 AU ***Gruber, Helen E.*** ; Stasky, Audrey A.; Hanley, Edward N., Jr.
 CS Department of Orthopaedic Surgery, Carolinas Medical Center, Charlotte, NC, USA
 SO Matrix Biol. (1997), 16(5), 285-288
 CODEN: MTBOEC; ISSN: 0945-053X
 PB Gustav Fischer Verlag, Jena GmbH
 DT Journal
 LA English
 AB Successful in vitro studies of disk cells require interaction of the cell with a compatible microenvironment which favors expression of the disk

cell phenotype. The objective of this study was to characterize cells grown by standardized methods of isolation and passage, and culture cells from the human annulus in three-dimensional culture. Cells from the annulus of 11 individuals were cultured in alginate or agarose for ten days, and extracellular matrix components were evaluated with immunohistochem. and quant. anal. of the percent of colonies producing Type I or II collagen, 4-sulfated chondroitin sulfate or keratan sulfate. Results show prodn. of these four extracellular matrix products through multiple passages and support the phenotypic stability of disk cells in three-dimensional culture.

L42 ANSWER 4 OF 4 BIOSIS COPYRIGHT 2000 BIOSIS
 DUPLICATE 1
 AN 1997:449258 BIOSIS
 DN PREV199799748461
 TI Human ***intervertebral*** disc cells from the annulus: Three-dimensional culture in agarose or alginate and responsiveness to TGF-beta-1.
 AU ***Gruber, Helen E. (1)*** ; Fisher, E. Carl, Jr.; Desai, Bhaloo; Stasky, Audrey A.; Hoelscher, Gretchen; Hanley, Edward N., Jr.
 CS (1) Dep. Orthopaedic Surgery, Carolinas Med. Cent., P.O. Box 32861, Charlotte, NC 28232 USA
 SO Experimental Cell Research, (1997) Vol. 235, No. 1, pp. 13-21, ISSN: 0014-4827.
 DT Article
 LA English
 AB Cell culture procedures were developed for use with surgical and normal control specimens of the annulus of the human ***intervertebral*** disc. Cells were established in monolayer explant culture and seeded into three-dimensional growth environments of alginate or agarose, under these growth conditions cells assumed a rounded phenotype and formed colonies. A novel method of layering suspensions of cells onto cell well inserts proved technically much easier than the microbead culture method. Immunohistochemistry was utilized to demonstrate in vitro production of the following extracellular matrix components: types I, II, III, and collagen, 4-S-chondroitin sulfate, and keratan sulfate. Young and old age- and gender-matched cells grown in the presence of TGF-beta-1 showed

significant enhancement of proliferation after 4 days of exposure to TGF-beta with a lessened mitogenic response present after 10 days. Molecular studies of proteoglycan gene expression showed that at 4 days young normal cells had increased biglycan, but not decorin, message levels. Decorin expression was unchanged at Day 4 and decreased or shut off by Day 10. Results support the use of three-dimensional culture systems for in vitro evaluation of human disc cell function and expand our understanding of the in vitro behavior of these cells.

=> s 137 or 140
 L43 72 L37 OR L40
 => s 143 and disc#ab.bi
 *AB IS NOT A VALID FIELD CODE
 L44 11 L43 AND DISC#AB.B1
 => dup rem 144
 PROCESSING COMPLETED FOR L44
 L45 11 DUP REM L44 (0 DUPLICATES REMOVED)
 => d 1- bib ab
 YOU HAVE REQUESTED DATA FROM 11 ANSWERS - CONTINUE? Y(N)?Y
 L45 ANSWER 1 OF 11 INPADOC COPYRIGHT 2000 EPO
 LEVEL 1
 AN 132171799 INPADOC ED 20000801 EW 200030 UP
 20000801 UW 200030
 TI METHOD FOR PRODUCING HUMAN INTERVERTEBRAL ***DISC*** CELLS
 IN HANLEY, JR., EDWARD NATHANIEL; GRUBER, HELEN ELIZABETH
 INS HANLEY JR EDWARD NATHANIEL; ***GRUBER HELEN ELIZABETH***
 INA US; US
 PA CHARLOTTE-MECKLENBURG HOSPITAL, AUTHORITY
 PAA US
 DT Patent
 PIT US A UNITED STATES PATENT
 PI US 6080579 A 20000627
 AI US 1997:979674 A 19971126
 PRAI US 1997:979674 A 19971126
 AB There is provided a method for growing human intervertebral cells
 Disc tissue is surgically removed from a animal

disc of a patient, the cells expanded by feeding with a cell stimulant such as a growth factor, or a cytokine or a bioactive agent to form monolayer primary cell cultures on a plastic mesh such as a nylon mesh. In the case of a growth factor, fetal bovine serum is preferred as it improves proliferation and production of appropriate extracellular matrix components. In another aspect of this invention, the monolayer primary cell cultures are seeded in alginate or agarose and fed again with the cell stimulant until three-dimensional cell cultures are formed. The cells are recovered from the alginate or agarose or from monolayer cultures. Re-implantation is carried out using bioresorbable carriers or cell suspensions.

L45 ANSWER 2 OF 11 CAPLUS COPYRIGHT 2000 ACS
AN 2000:604181 CAPLUS
TI Optimization of 5-(4-and-6)-carboxyfluorescein diacetate succinimidy ester for labeling human intervertebral ***disc*** cells in vitro
AU ***Gruher, Helen E.*** ; Leslie, Kelly P.; Ingram, Jane A.;
Hanley, Edward N., Jr.
CS Orthopaedic Research Biology, Carolinas Medical Center, Charlotte, NC.
28232, USA
SO Biotech. Histochem. (2000), 75(3), 118-123
CODEN: BIHEU; ISSN: 1052-0295
PB Lippincott Williams & Wilkins
DT Journal
LA English
AB We have assessed the utility of an intracellular fluorochrome, 5-(4-and-6)-carboxyfluorescein diacetate succinimidy ester (CFSE), as a tracking label for human intervertebral disk cells in vitro. Although mu M provides adequate intracellular labeling for whole cell fluorescent microscopic identification of labeled cells, 20 mu M was preferable for immunocytochem. localization of paraffin embedded labeled cells. Electron dense vesicles are seen at the ultrastructural level in labeled cells. Discrete vesicular labeling can also be obsd. in whole cell mounts viewed with fluorescence microscopy. Whole cells retain good label for 6 wk.
CFSE labeling is relatively easy, nontoxic to cells and nonradioactive.
Initial optimization of dose with specific cells types is recommended when confirmation of pos. immunocytochem. is needed for tissue engineering studies.

L45 ANSWER 3 OF 11 INPADOC COPYRIGHT 2000 EPO
LEVEL 1
AN 50459235 INPADOC EW 199925 UP 19991109 UW 199944
TI METHOD FOR PRODUCING HUMAN INTERVERTEBRAL ***DISC*** CELLS
IN HANLEY, EDWARD, NATHANIEL, JR.; GRUBER, ELIZABETH, HELEN
INS ***HANLEY EDWARD NATHANIEL, JR*** ; GRUBER ELIZABETH HELEN
INA US; US
PA CHARLOTTE-MECHLENBURG HOSPITAL AUTHORITY, HANLEY, EDWARD, NATHANIEL, JR.;
GRUBER, ELIZABETH, HELEN
PAS CHARLOTTE-MECHLENBURG HOSPITAL, HANLEY EDWARD NATHANIEL, JR.; GRUBER ELIZABETH HELEN
PAA US; US; US
TL English, French
LA English
DT Patent
PIT WOAI PUBL. OF THE INT. APPL. WITH INT. SEARCH REPORT
PI WO 9927077 A1 19990603
DS RW: GH GM KE LS MW SD SZ UG ZW AM AZ BY KG KZ MD RU TJ TM AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
W: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI FR GB GE GH GM HR HU ID IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US UZ VN YU ZW
AI WO 1998-US2137 A 19981124
PRAI US 1997-979674 A 19971126
OSDW 99-385212
AB There is provided a method for growing human intervertebral cells.
Disc tissue is surgically removed from a normal ***disc*** of a patient, the cells expanded by feeding with a cell stimulant such as a growth factor, or a cytokine or a bioactive agent to form monolayer primary cell cultures on a plastic mesh such as a nylon mesh. In the case of a growth factor, fetal bovine serum is preferred as it improves cell proliferation and production of appropriate extracellular matrix components. In another aspect of this invention, the monolayer primary cell cultures are seeded in alginate or agarose and fed again with the cell stimulant until three-dimensional cell cultures are formed. The

cells are recovered from the alginate or agarose or from monolayer cultures. Re-implantation is carried out using bioresorbable carriers or cell suspensions.

L45 ANSWER 4 OF 11 INPADOC COPYRIGHT 2000 EPO
LEVEL 1
AN 113020209 INPADOC ED 19990916 EW 199936 UP 19990916 UW 199936
TI METHOD FOR PRODUCING HUMAN INTERVERTEBRAL ***DISC*** CELLS
IN EDWARD NATHANIEL HANLEY JR.; ELIZABETH HELEN GRUBER
INS ***HANLEY EDWARD NATHANIEL, JR*** ; GRUBER ELIZABETH HELEN
PA CHARLOTTE-MECHLENBURG HOSPITAL AUTHORITY
PAS CHARLOTTE-MECHLENBURG HOSPITAL
DT Patent
PIT AUAI COMP. SPEC. OPEN TO PUB. INSP.
PI AU 9916045 A1 19990615
AI AU 1999-16045 A 19981124
PRAI US 1997-979674 A 19971126
WO 1998-US2137 W 19981124
L45 ANSWER 5 OF 11 BIOSIS COPYRIGHT 2000 BIOSIS
AN 1998:28755 BIOSIS
DN PRE V199800028755
TI Characterization and phenotypic stability of human ***disc*** cells in vitro.
AU ***Gruher, Helen E.*** ; Saseky, Audrey A.; ***Hanley, Edward N.,***
*** Jr.***
CS Dep. Orthopaedic Surg., Carolinas Med. Center, Charlotte, NC
USA
SO Matrix Biology, (Nov., 1997) Vol. 16, No. 5, pp. 285-288.
ISSN: 0945-053X.
DT Article
LA English
AB Successful in vitro studies of ***disc*** cells require interaction of the cell with a compatible microenvironment which favors expression of the ***disc*** cell phenotype. The objective of this study was to characterize cells grown by standardized methods of isolation and passage, and culture cells from the human annulus in three-dimensional culture.
Cells from the annulus of 11 individuals were cultured in alginate or agarose for ten days, and extracellular matrix components were evaluated with immunohistochemistry and quantitative analysis of the percent of colonies producing Type I or II collagen, +sulfated chondroitin sulfate

or keratan sulfate. Results show production of these four extracellular matrix products through multiple passages and support the phenotypic stability of ***disc*** cells in three-dimensional culture.

L45 ANSWER 6 OF 11 BIOSIS COPYRIGHT 2000 BIOSIS
AN 1997:449258 BIOSIS
DN PREVI99799748461
TI Human intervertebral ***disc*** cells from the annulus: Three-dimensional culture in agarose or alginate and responsiveness to TGF-beta-1.
AU ***Grueter, Helen E. (1)*** ; Fisher, E. Carl, Jr.; Desai, Bhaloo;
Stasky, Audrey A.; Hoelscher, Gretchen; ***Hanley, Edward N., Jr.***
CS (1) Dep. Orthopaedic Surgery, Carolinas Med. Cent., P.O. Box 32861, Charlotte, NC 28232 USA
SO Experimental Cell Research, (1997) Vol. 235, No. 1, pp. 13-21. ISSN: 0014-4827.
DT Article
LA English
AB Cell culture procedures were developed for use with surgical and normal control specimens of the annulus of the human intervertebral ***disc***.
Cells were established in monolayer explant culture and seeded into three-dimensional growth environments of alginate or agarose; under these growth conditions cells assumed a rounded phenotype and formed colonies. A novel method of layering suspensions of cells onto cell well inserts proved technically much easier than the microbead culture method. Immunohistochemistry was utilized to demonstrate in vitro production of the following extracellular matrix components: types I, II, III, and VI collagen, 4-S-chondroitin sulfate, and keratan sulfate. Young and old age- and gender-matched cells grown in the presence of TGF-beta-1 showed significant enhancement of proliferation after 4 days of exposure to TGF-beta with a lessened mitogenic response present after 10 days. Molecular studies of proteoglycan gene expression showed that at 4 days young normal cells had increased biglycan, but not decorin, message levels. Decorin expression was unchanged at Day 4 and decreased or shut off by Day 10. Results support the use of three-dimensional culture systems for in vitro evaluation of human ***disc*** cell function and expand our understanding of the in vitro behavior of these cells.

L45 ANSWER 7 OF 11 BIOSIS COPYRIGHT 2000 BIOSIS
AN 1995:231324 BIOSIS
DN PREVI99598245624
TI Management of syndromes related to herniated ***discs***
AU ***Hanley, Edward N., Jr.***
CS Dep. Orthopaedic Surgery, Carolinas Med. Cent., Charlotte, NC 28203 USA
SO Weinstein, J. N. [Editor]; Rydevik, B. L. [Editor]; Sonntag, V. K. H. [Editor] (1995) pp. 165-193. Essentials of the spine. Publisher: Raven Press 1185 Avenue of the Americas, New York, New York
10036-2806 USA
ISBN: 0-7817-0251-8.
DT Book
LA English
L45 ANSWER 8 OF 11 BIOSIS COPYRIGHT 2000 BIOSIS
AN 1996:71729 BIOSIS
DN PREVI99698643864
TI The indications for lumbar spinal fusion with and without instrumentation.
AU ***Hanley, Edward N., Jr.***
CS Dep. Orthop. Surg., Carolinas Med. Cent., P.O. Box 32861, Charlotte, NC 28232-2861 USA
SO Spine, (1995) Vol. 20, No. 24 SUPPL., pp. 143S-153S. ISSN: 0362-2436.
DT General Review
LA English
AB Study Design: Literature review. Objectives: A review, analysis, and discussion of the extensive literature on lumbar spinal fusion were done to attempt to place in perspective the indications and success rates for lumbar spinal fusion with and without instrumentation. Summary of Background Data: A wide variety of lumbar spinal conditions have been managed by spinal fusion. Results appear better when the diagnosis is very specific and related to definable instability or deformity in patients with a stable psychologic state. Methods: Search of literature. Results: Success rates are higher in isthmus spondylolisthesis, unstable spinal stenosis syndromes (degenerative spondylolisthesis, degenerative scoliosis), and in patients with objective segmental instability. Variable success rates are reported for ***disc***-related low back pain conditions and in patients with failed previous surgery. Instrumentation appears to be beneficial in situations where complex deformities or obvious instability is present. When applied for other diagnoses (e.g., internal ***disc*** disruption), results appear no better than with

traditional surgical techniques. Conclusions: The outcome of lumbar spinal fusion depends on careful assessment of the anatomic cause of pain and of the patient's functional state and expectations.

L45 ANSWER 9 OF 11 BIOSIS COPYRIGHT 2000 BIOSIS
AN 1996:71722 BIOSIS
DN PREVI99698643857
TI Biomechanics introduction. 1995 Focus Issue meeting on fusion.
AU Pope, Malcolm H.; Gool, Vijay K.; Sumner, Dale R.; Andersson, Gunnar B. J.
(1). Boden, Scott D.; Fraser, Robert D.; Garfin, Steven R.; ***Hanley, Edward N., Jr.*** ; Katz, Jeffrey N.; Sonntag, Volker K. H.; Spratt, Kevin F.; Zdeblick, Thomas A.
CS (1) Rush-Presbyterian-St. Luke's Med. Cent., 1653 W. Congress Parkway, Chicago, IL 60612-3864 USA
SO Spine, (1995) Vol. 20, No. 24 SUPPL., pp. 84S. ISSN: 0362-2436.
DT Article
LA English
L45 ANSWER 10 OF 11 BIOSIS COPYRIGHT 2000 BIOSIS
AN 1994:445252 BIOSIS
DN PREVI99497458252
TI Lumbar intervertebral ***disc*** transfer: A canine study.
AU Frick, Steven L. (1); ***Hanley, Edward N., Jr.*** ; Meyer, Ralph A.; Ramp, Warren K.; Chapman, Todd M.
CS (1) Dep. Orthopaedic Surg., Carolinas Med. Cent., P.O. Box 32861, Charlotte, NC 28232 USA
SO Spine, (1994) Vol. 19, No. 16, pp. 1826-1835. ISSN: 0362-2436.
DT Article
LA English
AB Study Design: Degenerative lumbar ***disc*** disease has been implicated as a cause of low back pain. Current treatment options for low back pain involve morphologic fusion of the involved segments and have variable success rates. This is an experimental study of lumbar intervertebral ***disc*** transplantation using a canine surgical model. Objectives: This study evaluated the feasibility of lumbar ***disc*** transplantation and its effects on ***disc*** metabolism and morphology. Method: Eight mature mongrel dogs underwent transfer surgeries, in which the L2-L3 and L4-L5 intervertebral ***discs***, with a small segment of adjacent superior and inferior vertebral body, were removed and transposed. The transplanted ***discs*** were stabilized by plates or by a flexible cable wire

construct using Songer cables (DANEK, Inc., Memphis, TN). Unrestricted activity was allowed postoperatively. At 4 months, the spines were harvested, and the transplanted ***discs*** were evaluated biochemically and histologically. Intervening nontransplanted ***discs*** served as viable controls and thirce-frozen ***discs*** served as nonviable controls. Cell viability was assessed by measuring proteoglycan synthesis and DNA content Results: Proteoglycan synthesis (35S uptake normalized to DNA content) was maintained in transplanted annulus fibrosus tissue, but was decreased in nucleus pulposus samples (P = 0.05). DNA content was not altered significantly in the transplanted ***discs***. Histologic analysis of the transplanted ***discs*** showed revascularization and remodeling of the bone adjacent to the annulus fibrosus. The transplanted nucleus pulposus samples had chondrocyte-like cells present, but the staining characteristics of the nucleus material was variable. The contour of the transplanted ***discs*** endplates was irregular in all specimens. Conclusions: The structure and function of autograft intervertebral ***discs*** were maintained after ***disc*** transfer surgery; the transplant ***discs***, however, were not completely normal in either their morphology or their metabolic functioning.

L45 ANSWER 11 OF 11 BIOSIS COPYRIGHT 2000 BIOSIS AN 1994:72250 BIOSIS DN PREV199497083250 T1 Traumatic lumbosacral spondylosis. AU ***Hanley, Edward N., Jr. (1)***; Knox, Benjamin D.; Ramnasty, Sai; Moossy, John J. CS (1) Dep Orthopaedic Surg, Carolinas Med Cent., P.O. Box 32861, Charlotte, NC 28232-2861 USA SO Journal of Bone and Joint Surgery American Volume, (1993) Vol. 75, No. 11, pp. 1695-1698. ISSN: 0021-9355 DT Article LA English

=> d45 kwicl

KWICV IS NOT A VALID FORMAT In a multi-file environment, a format can only be used if it is valid in at least one of the files. Refer to file specific help messages or the STNGUIDE file for information on formats available in individual files. REENTER DISPLAY FORMAT FOR ALL FILES (FILEDEFAULT)kwic

L45 ANSWER 1 OF 11 INPADOC COPYRIGHT 2000 EPO T1 METHOD FOR PRODUCING HUMAN INTERVERTEBRAL ***DISC*** CELLS INS HANLEY JR EDWARD NATHANIEL. ***GRUBER HELEN ELIZABETH*** AB There is provided a method for growing human intervertebral cells. ***Disc*** tissue is surgically removed from a normal ***disc*** of a patient, the cells expanded by feeding with a cell stimulant such as a growth factor, or a cytokine. . . => d his

(FILE HOME: ENTERED AT 08:38:04 ON 07 SEP 2000)

FILE MEDLINE: ENTERED AT 08:38:17 ON 07 SEP 2000
L1 1928 S INTERVERTEBRAL DISC#AB.BI
L2 81 S L1 AND (IMPLANT? OR TRANSPLANT?)AB.BI
L3 61 S L2 AND HUMAN/AB.BI
L4 0 S L3 AND (EXPANDED OR EXPANSION?)AB.BI
L5 28 S L3 AND TREAT?/AB.BI

FILE STNGUIDE: ENTERED AT 08:40:36 ON 07 SEP 2000

FILE MEDLINE: ENTERED AT 08:51:22 ON 07 SEP 2000
L6 24 S INTERVERTEBRAL DISC CELL#AB.BI
L7 0 S L6 AND MODEL?/AB.BI
L8 5 S L6 AND MODEL?/AB.BI

FILE STNGUIDE: ENTERED AT 08:52:43 ON 07 SEP 2000

FILE MEDLINE: ENBASE, BIOSIS, INPADOC, CAPLUS⁺ ENTERED AT 08:58:11 ON 07 SEP 2000
L9 18 S L8
L10 8 DUP REM L9 (10 DUPLICATES REMOVED)

FILE MEDLINE: ENTERED AT 08:59:43 ON 07 SEP 2000
L11 2789 S ANNE:US/AB.BI
L12 413 S L11 AND (IMPLANT? OR TRANSPLANT?)AB.BI
L13 16 S L12 AND DISC/AB.BI

FILE STNGUIDE: ENTERED AT 09:01:42 ON 07 SEP 2000

FILE MEDLINE, ENBASE, BIOSIS, INPADOC, CAPLUS⁺ ENTERED AT 09:08:44 ON 07 SEP 2000
L14 46 S L13
L15 31 DUP REM L14 (15 DUPLICATES REMOVED)

FILE MEDLINE: ENTERED AT 09:10:03 ON 07 SEP 2000
L16 1539 S IDIOPATHIC SCOLIOSIS/AB.BI
L17 11 S L16 AND INTERVERTEBRAL DISC#AB.BI
L18 1359 S DISC HERNIATION/AB.BI
L19 245 S L18 AND INTERVERTEBRAL DISC#AB.BI
L20 9 S L19 AND (ANNULUS OR NUCLEOS?)AB.BI
L21 456 S DISC DEGENERATION/AB.BI
L22 169 S L21 AND INTERVERTEBRAL DISC#AB.BI
L23 18 S L22 AND (ANNULUS OR NUCLEOS?)AB.BI
L24 2072 S SPINAL STENOSIS/AB.BI
L25 54 S L24 AND INTERVERTEBRAL DISC/AB.BI
L26 1 S L25 AND (ANNULUS OR NUCLEOS?)AB.BI
L27 3 S L25 AND (IMPLANT? OR TRANSPLANT? OR ALLOGRAFT?)AB.BI
L28 5231 S L16 OR L18 OR L21 OR L24
L29 18 S L28 AND ALLOGRAFT/AB.BI
L30 24 S INTERVERTEBRAL DISC CELL#AB.BI
L31 0 S L30 AND (TRANSPLANT? OR IMPLANT? OR ALLOGRAFT?)AB.BI

FILE MEDLINE, ENBASE, BIOSIS, INPADOC, CAPLUS⁺ ENTERED AT 09:16:34 ON 07 SEP 2000
L32 83 S L30
L33 36 DUP REM L32 (47 DUPLICATES REMOVED)
L34 0 S INTERVERTEBRAL DISC CELL# AND AUTOLOGOUS/AB.BI
L35 40 S INTERVERTEBRAL DISC AND AUTOLOGOUS/AB.BI
L36 24 DUP REM L35 (16 DUPLICATES REMOVED)
L37 E HANLEY EDW/ARD/AU
L38 31 S E6-E8
L39 7 S L37 AND INTERVERTEBRAL/AB.BI
L40 6 DUP REM L38 (1 DUPLICATE REMOVED)
L41 E GRUBER HELEN/AU
L42 49 S E5-E6
L43 5 S L40 AND INTERVERTEBRAL/AB.BI
L44 4 DUP REM L41 (1 DUPLICATE REMOVED)
L45 72 S L37 OR L40
L46 11 S L43 AND DISC# AB.BI
L47 11 DUP REM L44 (0 DUPLICATES REMOVED)

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---Logging off of STN---

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Executing the logoff script.